LONDON INTERNATIONAL EXHIBITION, 1871.

OFFICIAL REPORTS.

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NATIONAL COLLEGE OF ART & DESIGN

ART DEPT. SOUTH KENSINGTON

London International Exhibition, 1871.

THE FIRST OF A SERIES HELD UNDER THE DIRECTION OF HER MAJESTY'S COMMISSIONERS FOR THE EXHIBITION OF 1851.

METROPOLITAN SCHOOL OF ART
DUBLIN.
SCIENCE & ART DEPARTMENT

OFFICIAL REPORTS

ON THE

VARIOUS SECTIONS OF THE EXHIBITION.

EDITED BY

THE RIGHT HON. LORD HOUGHTON.

VOLUME I.

FINE ARTS, AND POTTERY.

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SCIENCE & ART

CONTENTS.

		PAGE.
PAINTING IN OIL	*By Sir Coutts Lindsay, Bart.*	1
DO. WATER COLOUR	*By S. Redgrave, Esq.*	23
DO. MISCELLANEOUS	*By Sir M. Digby Wyatt*	31
STAINED GLASS AND MOSAICS	*By T. Gambier Parry, Esq.*	45
SCULPTURE	*By R. Westmacott, Esq., R.A., F.R.S.*	57
FURNITURE AND METAL WORK	*By J. H. Pollen, Esq.*	71
MISCELLANEOUS ART	*By W. B. Scott, Esq.*	93
ENGRAVING, LITHOGRAPHY, ETC.	*By Julian Marshall, Esq.*	105
ENGRAVING ON WOOD	*By T. J. Gullick, Esq.*	117
PHOTOGRAPHY	*By Col. Stuart Wortley*	133
ARCHITECTURAL DESIGNS	*By T. Roger Smith, Esq.*	141
TAPESTRIES, CARPETS, AND SHAWLS	*By J. H. Pollen, Esq.*	169
LACE	*By Mrs. H. Reeve*	183
EMBROIDERIES	*By the Rev. Canon Rock, D.D.*	191
ON THE PRESENT STATE OF DESIGN FOR DECORATIVE MANUFACTURES	*By R. Redgrave, Esq., R.A.*	197
ART REPRODUCTIONS	*By Lieut. H. H. Cole, R.E.*	211
POTTERY, EARTHENWARE	*By C. Drury Fortnum, Esq., F.S.A.*	223
PORCELAIN	*By Chas. Magniac, Esq., M.P., and R. H. Soden Smith, Esq.*	243
PARIAN AND MISCELLANEOUS	*By L. Arnoux, Esq.*	279
STONEWARE	*By Lieut. J. G. S. Davies, R.E.*	305
TERRA COTTA, BRICKS, TILES, ETC.	*By Gilbert R. Redgrave, Esq.*	315
FIRE CLAY GOODS	*By Lieut. G. E. Grover, R.E.*	333
NEW MACHINERY AND PROCESSES	*By Peter Bawden, Esq.*	345

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NOTE.

THE Reports on the International Exhibition of 1871 contained in these volumes have already appeared in ten separate parts, which were issued at intervals during the summer of 1871, for the convenience of visitors to the Exhibition. They are now re-published in a collected form, as a permanent record of this, the first of the proposed series of Annual International Exhibitions.

The following letter was addressed to the various Foreign Commissions some weeks before the opening of the Exhibition :—

Annual International Exhibitions of Selected Works of Fine and Industrial Art and Scientific Inventions, under the direction of Her Majesty's Commissioners for the Exhibition of 1851.

UPPER KENSINGTON GORE,
LONDON, W., 15*th March*, 1871.

SIR,

I am directed by Her Majesty's Commissioners to transmit, for your information, the following explanations relative to the part which it is proposed should be taken by Foreign Commissioners in the Reports on the objects contributed to the International Exhibition of this year.

1.—The British Commissioners will appoint Reporters, and publish the Reports at their own expense.

2.—The Reports may be assented to by Foreign Commissioners, and be signed by their delegates, if such Reports meet their approval.

3.—Or if delegates do not concur in the Reports, their representations will be published as Notes to the Reports.

4.—Or Foreign Commissioners, if they elect to publish their own Reports at their own cost, will have every facility given them for the purpose.

I have the honour to be, Sir,

Your most obedient servant,

(Signed) HENRY Y. D. SCOTT,

Lieutenant-Colonel R.E., *Secretary.*

In accordance with these arrangements, a copy of each Report was, immediately on its appearance, forwarded to every Foreign Commission. Various suggested corrections and observations relating to these Reports were from time to time addressed to Her Majesty's Commissioners, chiefly relating to foreign contributions which, owing to their late arrival, had escaped the notice of the Reporters. These were communicated to the writers of the Reports, and have met with all possible consideration. A note on the Report on Oil Painting, communicated by the Belgian Commission, will be found in its proper place at the end of that Report. With this exception, no representations have been offered calling for special notice,* and Her Majesty's Commissioners have, with much

* The Swedish Commissioners are desirous that it should be stated that some examples of cheap Swedish Pottery for domestic use, procured for Her Majesty's Commissioners, were exhibited in the same cases with the selected contributions from Sweden; and they suggest that the Official Reporter on this class may have thus been led to form a lower estimate of the Swedish Collection of Pottery than he would otherwise have done.

satisfaction, received authority to append the following signatures to this collected Edition of the Reports, in evidence of the general approval of the various Foreign Commissions:—

Austria	FRANZ BARON v WERTHEIM.
Baden	RATZEL.
Bavaria	KONRAD KNOLL.
Hesse	SCHLEIERMACHER.
Hungary	CHARLES LEWIS POSNER.
Italy	GEO. REDFORD, F.R.C.S. JULIAN MARSHALL.
Norway	O. PIHL.
Saxe Weimar	THOMAS J. GULLICK.
Spain	RAFAEL DE BENJUMEA.
Sweden	A. H. FOCK.
Wurtemberg	STEINBEIS.

The French Commission has announced an intention to publish its own Reports on the Exhibition.

METROPOLITAN SCHOOL OF ART,
DUBLIN.
SCIENCE & ART DEPARTMENT

REPORT ON PAINTINGS IN OIL

In the International Exhibition of 1871.

By Sir COUTTS LINDSAY, Bart.

The Exhibitions of 1851 and 1862 were fitting introductions to the great scheme of international exhibitions, which is intended to present every ten years an epitome of art-progress, not only in Great Britain, but throughout the civilised world. In 1851 pictures found no place, but in 1862 our galleries comprised within their walls, in association with the works of living artists, those of their illustrious predecessors for a century previous. The English gallery was graced with the finest productions of Hogarth, Reynolds, Gainsborough, Wilkie, and other members of that brotherhood, who may be considered as the Fathers of British painting; whilst side by side with these were hung the works of their more immediate descendants (I will not call them pupils); such men as Lawrence, Turner, Maclise, Etty, Stanfield, Mulready, and many others, then among the living painters of the time, now no longer to be seen in the busy struggle for fame. Besides these were displayed the labours of others, then already famous, whose course is still in progress, and who, year after year, present us with new works fitted to increase their reputation and honour. France, in like manner, then produced the works of her most illustrious painters from before as well as since the Revolution —of Greuze and Boucher, David and Ingres, Paul Delaroche and Scheffer, as well as those of the later school, whose ranks are now so nobly filled, but of which, I fear, no adequate exhibition will adorn our French gallery during the present year. In a less complete degree, Belgium, Germany, Italy, and Scandinavia were represented by their chief painters, so that the art of a whole century was then seen comprised within the walls of one Exhibition.

Exhibitions of 1851 and 1862.

In the Exhibition of 1871 the galleries were intended to be filled with works more strictly within the scope of recurring international

Scope of present Exhibition

exhibitions, and were to represent the labours of the last ten years. No doubt pictures of an earlier date were not to be excluded, but they were to serve towards pointing the progress that had been made, when compared with the mass of more modern works, and to furnish the necessary links in the history of the art-progress of the last decade.

Contrast between 1862 and 1871.

As matters now stand, the Exhibition of 1862 had one great advantage over that of the present year. A general peace reigned over Europe; the minds of men were chiefly occupied with peaceful pursuits; art and industry ruled supreme; and our galleries then overflowed with the productions of every nation, anxious to compete in the honourable contest. The present Exhibition opens under a far darker aspect. The French, our great rivals in the arts of peace, are enduring most serious political and military disasters; the Germans are become a nation of successful soldiers; Italy is still breathless from her efforts to weld her people into one nation; and the rest of Europe stands at gaze, uncertain what a few days may bring forth.

Foreign galleries.

The present commotions in the moral atmosphere of Europe are very hostile to the struggles of industry, especially to any competitive exhibition of art; and, consequently, most of our continental galleries are either filled by inferior works or not filled at all. The wing devoted to France, Italy, and Germany, is very meagrely supplied with good works; whilst the greater spaces are occupied by those of a second and third-rate order. The exhibition of Belgium is more complete, and is worthy of our best consideration.

British art galleries.

The British Art Exhibition occupies the whole length of the western wing of the buildings, and is divided into three galleries and the two intermediate courts, whilst the foreign galleries fill the same spaces in the eastern wing. Thus, our own art-exhibition occupies nearly as large a space as those of all our foreign guests together. Of the British department of the Exhibition the north and south galleries are devoted to oil paintings; the centre gallery is assigned to water colours; and the centre courts have been reserved for a mixed exhibition of painting, furniture, wood-carving, and other art combinations. Examples of work in oil and in water-colours are here to be found in juxtaposition; but each department, as a rule, has been kept clear of the other.

English schools.

I propose, in considering the present collection of oil-paintings, first to pass in review the works of the English schools, and then to contrast its features with those of contemporary art in France

and Belgium. In doing so, I wish to avoid any minute criticism on individual pictures, or indeed on any particular master, except in his relation to the art-work of the country. The chief object to be attained by international exhibitions must ever be the mutual benefit to be derived from an enlightened study of each school, and the fresh impulse that such an interchange of ideas must give to all who work, isolated from their fellow-labourers, in their own or other countries. In conclusion, I should wish to offer a few suggestions on the future education of artists, both by the present masters of our schools, and in the schools of public art-instruction, by which the future destiny of our English Art may be much moulded and directed. The present collection of works in the English gallery cannot be considered as a complete exponent of our contemporary painting. The number of pictures is great, and the average worthy of exhibition; yet the Royal Commissioners have not been able to obtain a sufficient number of the best works of our principal painters, and have further been induced to dilute the collection with indifferent works, more appropriate for the yearly Exhibition, which will henceforth be opened in these galleries.

English schools

The small knot of masters who, flourishing in the latter half of the last century, gave existence to the modern School of Painting in England, had little connection with those painters who, under the influence of the school of Vandyck, practised their art in this country. They were all of them self-taught men; no school worthy of the name had previously existed; the strong bias of their minds, unchecked by any scholastic guidance, pressed them irresistibly along their several lines of thought; each of them obtained as complete an education in the technical branches of his profession as his surrounding circumstances could afford, and worked out his education with very little assistance from any early instruction of the schools. The works of these men had consequently a stamp very unlike any art-productions of their immediate predecessors; they possessed a marvellous originality of purpose and variety of resource, although often cramped by an incompleteness, painfully evident, in the technical knowledge of their profession. Hogarth, the first in point of time, was also the first in genius and workmanlike completeness of execution. Reynolds, scarcely less great, has had the most lasting influence and popularity.

The masters of the 18th century

To these men and their contemporaries we are indebted for the excellencies, as well as for many of the shortcomings, of our present school; their influence has only very lately begun to diminish, and will never disappear. The habit of self-education and self-guidance, adopted by them as the key-stone of their system, still continues to

Their influence at the present day.

Their influence at the present day.

be the rule, and will, I believe, be the chief characteristic of English Art for many years to come. It is almost impossible, for the reason above stated, to class the works exhibited in these galleries. The artistic descent, which evolves like a genealogical tree in all other schools of Europe, has here no existence; each man is father of his own vitality, and has but a very partial relation to any of his contemporaries. On the other hand, it is evident that a like bias of mind has gathered many of our artists into certain groups, which, although they cannot strictly be called schools, may be named brotherhoods. This tendency is in the growth of our art, and will have, I believe, a very beneficial influence; it will, too, I think, develop into some means of education which may take the place of, and supply the advantages possessed by, those instructed in the more rigid training of foreign schools.

The pre-Raphaelites.

The first evidence of such a tendency appeared with the knot of young artists who, under the name of pre-Raphaelites, upset the equanimity of the sleepy art of the day. They started with an unbounded belief in the strict imitation of Nature, the great mother from whom all art must spring, and an abhorrence of the conventional style into which English painters had fallen since the days of their first vigour. With the enthusiasm of a new faith, they believed that their creed contained all in all, and followed out its conclusions with unflinching trust. The influence they gained was at once sudden and complete. The sleepers of the veteran school at first offered a contemptuous resistance, but soon perceived that the reformers attracted the eye of the public—that their works, whatever were their demerits, were thronged by eager examiners, and that their places on the walls of the Academy were marked by crowds of curious critics. The chief spirits that led this return to Nature were headed by Holman Hunt, Millais, and Rossetti; they received at once the eloquent support of Ruskin, whose writings swelled the tide of their success beyond the bounds of reason. The one great truth, which first gave them their vitality, supported them after the high tide of their popularity had ebbed; but some of their number grew to see that one truth does not constitute a complete creed, and that Nature is sometimes as much a Sphinx as an Œdipus to the artist. Others of a more narrow mind continued to follow their supreme idea; but the effect of this protest in favour of a neglected principle spread throughout the whole school of British art, and acted as a spur even on men who least admitted the nature of the influence. The present collection of pictures has no example of the pre-Raphaelite works of that day. This is much to be regretted, as amongst them may be discovered the seeds of a great part of the success of our present

school. The works themselves might now be little admired; they are full of the crudities of an uneducated perception. Nature gave the text, but the preachers were unapt to speak; they stammered and stuttered over many noble efforts, and finally diverged into very different paths.

Other painters contemporary with the pre-Raphaelites.

It is not to be understood that the pre-Raphaelites were alone in their endeavours to renovate the art of this country, or that there were no masters of the highest merit belonging to the elders of our schools. It is enough to recall the names of men such as Leslie, Phillips, Mulready, Etty, Grant, Watson Gordon, and many others, whose works will always hang in the chief places of our English galleries. Independently of these, a small class had long been at work in another direction, whose natures were more in accordance with the ancient art-traditions of Greece and Italy. In Mr. Taylor's life of Haydon, most readers will remember how that great and unfortunate genius struggled to open the eyes of the public to the god-like sculptures of the Parthenon, then lately acquired by the nation; how his efforts were long unsuccessful; how, finally, by his writings, he induced the Government to retain for us the greatest works of art that have ever been produced by man. The influence he had acquired was cut short by his untimely death; and the faults of his character and works served to cast an unmerited slur on the cause he had advocated.

"High Art:" the Westminster Palace cartoons.

High art (as the cant phrase is) was laughed down and neglected both by the public and the bulk of our artists, and remained in a state of collapse until revived by the Prince Consort on the occasion of the Cartoon Exhibitions in Westminster Hall. The decoration of the Houses of Parliament then occupied public attention, and the Government offered prizes for the best cartoons and most successful paintings in fresco. It was folly to suppose that men fitted for such an undertaking could be evoked at the demand of a Government; it required two centuries to prepare the schools represented by Michael Angelo and Raphael for the labours of the Vatican. Yet England expected to obtain similar results by the stroke of a pen! Designs in great variety were exhibited, most of them of so incongruous a nature that those acquainted with the mural decorations of Italy, France, and Germany at once felt the undertaking to be impossible; and the Government, after many languid efforts and several experiments, ceased to prosecute the endeavour.

Influence of Mr. Watts and others at the present time.

Among those who exhibited their cartoons on this occasion were three or four men far different to the rest, Mr. Watts, Mr. Armitage, and Mr. Herbert, with one or two others, either educated

Influence of Mr. Watts and others at the present time.

in foreign schools or self-instructed by a long intimacy with old Italian works; and to these men we are indebted for a new influence. The principles they advocated and still uphold have never obtained the popularity which wafted forwards the pre-Raphaelite party; but their influence has extended year by year, and has lately taken a great hold upon the country. Mr. Watts must be considered the best exponent of this school; he was in early life a student of the Academy; but Greece and Italy have been his real instructors. Like Haydon, he devoted his heart and intellect to Greek art; but, unlike him, he was contented patiently to guide the British art-public from their narrow worships towards the appreciation of an order of beauty once far beyond their vision. Several of his works are to be seen in the present Exhibition, but not those best fitted to illustrate his genius—heads of Sir John Lawrence, of the Prince de Joinville, of Mr. Carlyle—the half-length portraits of Miss Prinsep and of Joachim; a study of Esau, and others. These works are more easily understood by a connoisseur than by the public. The abstract of truth replaces so completely its direct imitation that one of the great pleasures to an uneducated eye is wanting. I confess that I consider this treatment more admirable in works of pure imagination than where the very life is to be placed on the canvas. All these portraits are, however, very noble works of their class. The figure of Esau is a masterly sketch, but I could have desired that such a work as Mr. Watts' "Time and Oblivion" had been seen in this collection, to stand as a mark of reference worthy of the man.

Wilkie and his followers.

The genius of Wilkie, like that of his fellow-pupil Haydon, has many followers among the present school. The definite character and homely sympathy of his work appeal straight to the feelings of all classes; the subjects treated by his pencil are to be found in every town of the three kingdoms, and can be appreciated by all who feel and think. Mulready, Frith, Leslie, etc., are all more or less indebted to the influence of Wilkie's genius in their earlier productions, although they found in later life a more individual expression for their own modes of thought.

Mr. Faed.

Mr. Faed appears to me the most distinctive representative of this school; his works are conceived in the very spirit of Wilkie—not from any feebleness in his own conception, but from a true congeniality of idea. The vital merit of this school does not consist either in its close imitation of external nature (which it possesses in common with the pre-Raphaelite painters) or in a recurrence to the highest types of humanity sought after by those idealists of art, at the head of whom I have ventured to place Mr. Watts, and with which

it has little sympathy. The field of its labours lies in the expression of human feeling, and the dramatic truth with which the story is told on the canvas. The "Last of the Clan," the principal work of Mr. Faed, now in the Exhibition, will best illustrate these observations, and it deserves our special attention. A group of peasants are watching the departure of an emigrant vessel; a broken sea almost surrounds the wild coast and small jetty on which they linger; and a common interest holds them on the spot—but how differently are they affected! An old Scotch peasant sits in the centre of the group, mounted on a pony as wayworn as himself. His head is sunk on his chest, and his gaze is fixed seaward; but he is too much occupied in dealing silently with the sorrow at his heart to see the bleak sea or distant ship. His face is to me one of the finest pieces of pathetic painting I ever remember to have seen: it bears an expression combining grief with thought and memory, of which I know no other example. Behind him, amongst other figures, an old woman thrusts her face forwards, her hand pressed over her mouth to keep down the sobs which she cannot control. Several other figures make up the group, each excellent in its own way, from the sailor who is about to coil up the hawser to the dog whining on the edge of the pier. The picture, as a painting, is not without its demerits; but I know of no other work so well fitted to illustrate the merits of the school or of the artist.

Mr. Faed

Passing on to another group of artists, I wish to draw attention to a new influence which bids fair to modify the English method of art-study, and to draw together once again the long-separated Schools of Oil and Water-colours. It should not be forgotten by the student of painting, that her earliest modes of expression were in fresco or in tempera; and that oil-painting did not supersede the older mediums, but was practised by the schools indifferently. Most painters of Mediæval Italy were sufficiently accomplished in their knowledge to wield these different materials with equal ease; and not only that, but they were often masters of the sister arts of architecture and sculpture, and held the entire circle of expression under their command. The far-reaching sweep that was common to the masters of those days continued even during the decline of art, and only died out entirely with the French Revolution. The increase of scientific knowledge has had the tendency to force students into a narrower circle of endeavour, without which, indeed, individual efforts are become futile; but this subdivision of labour, vital to the progress of accumulative knowledge, has had an injurious influence on those efforts of the mind which depend on the individual more than on the race, and has cramped the range

Relation of oil to water-colour painting.

and rise of art in an infinite number of ways. For this reason I hail with satisfaction the signs I perceive of re-union, not merely in the two modern modes of painting, but also in the combined study of the sister arts of painting, sculpture, and architecture, which it is the interest of our schools to encourage by all the means in their power.

Recent change in water-colour processes.

The English art of water-colour, which twenty years since was confined to what may be more properly termed tinting on paper, has made, during the last fifteen years, a remarkable approach to the old system of tempera—gradations of body-colour cover the paper, which is treated merely as a canvas, its white surface no longer representing the quality of light shining under transparent washes of colour. The system of using a white pigment, tempered with water or egg to represent light (which is indeed properly called "Tempera"), approaches to the same system as oil-painting, its only difference being the vehicle with which the colours are mixed. Since the two methods have converged thus closely, our painters have begun to make excursions across the border-land of the two methods, a feat at one time quite beyond their powers.

Its effect on oil painting.

Water-colour painters have gained a reputation in oils, and oil-painters have recovered the habit of using water-pigments in the initiatory stages of their works. This practice, which was adopted by the earlier Venetians, has many advantages of a technical nature, which we will leave to the consideration of the profession. Among the artists who first led the way in this interchange, I would select Messrs. Marks, Walker, Burne Jones, and Leslie; but, in fact, almost all the rising men of our school have done so with more or less success, several of them having obtained their first reputation as water-colour artists. In viewing the works of these men, compared with the oil-paintings of the school previous to their advent, it is impossible not to be struck with the improvement both in the colour and in the quality of the painting. They have imported into their oil-paintings many of the excellencies which had previously been considered the exclusive heritage of water-colours, and varied the treatment of material from a knowledge of the fellow art. The works of some of these artists bear a close resemblance to those of the 14th century, when tempera and oil were equally used, and for this reason, that they work with the same materials.

Mr. Frederick Walker.

From this knot of painters, I wish to select Walker as their exponent, chiefly because he appears to me a man of the highest promise in his profession, and also because he exhibits, in a

marked degree, their defects as well as their best qualities. Mr. Walker has two works in the present collection, "The Plough," and "The Bathers." The first represents the evening work of a ploughman, attended by his boy; the farmer sits on his horse, watching from a distance, whilst the last furrows are being turned on the damp glebe. The sandstone rocks and towering cloud that overhang the field are aglow with the ruddy light of the opposite sun, which has set on the ploughman and his work beneath. All the figures are in grey shade, but the rosy light of heaven gleams on the rock and on the cloud above. In works of imagination, one of the highest qualities is the direct transmission of the idea from the mind which conceives, to that which receives, it. Here the appeal is direct and forcible; but I desire to draw attention to the mode of painting, rather than to the æsthetic excellence of the picture, which the public has already acknowledged in the Royal Academy's exhibition of last year. From a short distance it would be very difficult to say in what medium this work has been wrought out, except that the defects incidental to oil are little apparent. In all colours prepared with oleaginous fluid the prismatic qualities of the pigments are very apt to deteriorate, and lose the fresh brilliancy which should enable the painter to approach to the colouring of nature. Pigments that are much intermixed with white, or indeed much intermingled on the oil palette with each other, also lose their pristine quality, so that it has always been a point of difficulty to obviate their deterioration as the work proceeds. Towards this object several systems have been devised at different periods too lengthy to describe, and many different descriptions of oil have been brought into requisition. The problem, I fear, remains still far from solved. Without question, however, those masters who have equally understood the two methods of oil and tempera have approached far nearer to excellence of colour in their works than any pupils of later schools. In the mode called tempera there is no intermixture of oil, but the colours are tempered with water, made binding by size and yolk of egg, or by one or two descriptions of gum easily dissolved. The colours so used do not lose their brilliancy, and possess a quality called internal light ("luce interna"), that is, the appearance of light radiating from the picture, which constitutes a principal charm in the works of the 14th and 15th centuries. The advantages of tempera are counterbalanced by the greater difficulty attending the use of the material; that material is inductile, and the execution of finished works is laborious in comparison with the process of oil; the colours are difficult to blend and graduate; and the best mode of finish necessitates a highly stippled and laboured surface, which it requires great art to conceal.

Mr. Frederick Walker.

Mr. Frederick Walker.

In both the works by Mr. Walker, above specified, the qualities of his colour rival the tempera paintings of the 15th century, displaying a prismatic brilliancy and an internal light which has been very seldom attained to by our English oil-painters. On the other hand, the defects above noted as incidental to tempera are also visible; the surface of the painting is painfully broken and patched; there is an abruptness and want of gradation in the colour, and a harshness of transition in the chiaro-oscuro, very detrimental to the complete beauty of the works. It is difficult, I acknowledge, to dissect Mr. Walker's method of painting, or to say whether he has indeed used tempera in the initiatory stages of his work, but I feel convinced that he owes much of his excellence to the equal knowledge of the two systems, and that his defects are also owing to the same source. What has been said of Mr. Walker holds good in like manner with all that class of artists who pass indifferently from one medium to the other; the double knowledge benefits their work in each, developing qualities in oil most difficult to obtain, but subjecting them in turn to difficulties in technical execution, which they may perhaps be the first to overcome, and the conquest over which will undoubtedly very greatly enlarge the capacities of oil-painting.

Sir E. Landseer and other animal painters.

Besides these principal clusters of painters, which I have touched upon, there are a number of men in our British school whose tendency has been to follow more directly their own bias. Several of these are well represented in this collection; others, and amongst them the greatest of our living artists, have not been so fortunate. Only two pictures by Landseer are hung in these galleries, "Van Amburgh with his Animals," and "The Highland Lassie." Both these works possess passages which Landseer alone could have painted; but neither of them are, as a whole, worthy of the great name they bear. It may be said of Landseer, as it has been said of Hogarth in his peculiar treatment of human life, that he opened a new chapter in art. Before Landseer's time, the animal kingdom was a sealed book. Rubens, Snyders, and Velasquez had depicted animals in connection with human action, but Landseer was the first artist who mastered the animal form, with its various phases of instinct (I had almost said thought), and reproduced it on the canvas before us. There is a refined knowledge of the different natures of the savage beasts about the prostrate figure of Van Amburgh which is worthy of the master, the cowardly ferocity of the tiger, and the savage magnanimity of the lion, are magnificently depicted; but the figure of Van Amburgh, and the secondary groups, human and animal, are very much beneath the general excellence of his best productions. I have only to recall one of Landseer's

early pictures, now in the Sheepshanks collection, to remind the reader how great he is in his own style. The work I allude to is called "Jack in Office," where the group of dogs illustrates the whole circle of the canine passions. In his later works, such as his "Alexander and Diogenes," he has sometimes used this power over animal expression to satirize the meannesses of humanity. In so doing, he opened a fresh vein of humour, and startled the world by the great resemblance he elicited between the expression of man and brute, when influenced by a like feeling. It is difficult to perceive why a master so consummate in his work, and who has enjoyed so unchequered a success in life, should not possess something resembling a school, or be followed by a class of younger artists. Frederick Tayler, in water-colours, and Ansdell, in oil, are the only men I can recollect who have ventured in the footsteps of Sir Edwin, and these have been contented with encompassing a very small part of the circle which he was the first to trace. I have omitted to name Mr. Britton Rivière, who is unrepresented in these galleries, but who may rightly claim a place as a follower in the path of Sir Edwin. His depiction of animal life is varied and excellent, and abounds in truth and humour, as the "Circe," in the Royal Academy of this year, fully illustrates.

Sir E. Landseer and other animal painters.

In reverting to the other men of our school who exert an influence on its present progress, I am startled at the great number, each of whom claims a share of our consideration—Hook, Millais, Leighton, Sir Noel Paton, Goodall, Lewis, and Sant, with many more. They include a goodly list of artists, too many to name, of whom England should be proud.

Leading names at present time.

I regret much that there is no example in this collection of the late Mr. Phillip, who, until of a mature age, made no mark on the art of his time, but whose works, having once obtained a deserved popularity, still retain their hold on the public. No painter, who narrows his delineation of nature to one nation and epoch (unless his greatness rests principally on the dramatic expression of his works), can ever hold a first rank in creative art. The constantly recurring resemblance between his pictures, however masterly in execution, brings satiety to the minds of his greatest admirers, and causes disappointment in finding the old ideas reproduced in a new dress. This criticism may be applied to Mr. Phillip, whose works are each admirable, but whose art circled within far too narrow a compass of idea to escape repetition.

Mr. Phillip.

Mr. Hook has two works in this Exhibition—namely, "The Acre by the Sea," and "The Merchant of Venice." They are

Mr. Hook.

Mr. Hook.

not among the happiest productions of his brush; but his art is always as charming as nature herself, in the aspect which he most loves. He is, however, in the habit of looking too much between the blinkers of a first success. The range of his present subjects is no doubt capable of a great variety of treatment; the sea and the sky, which share largely with humanity in his pictures, are both by nature infinite in their change, and impart a savour and freshness that no repetition can dull. I do not, therefore, say that Mr. Hook reproduces new editions of his old ideas; but I may venture to regret that so fine a master of the combined composition of landscape and figures does not pass into other phases of life which he has as yet left untouched, and which so penetrating a mind would soon make its own. In this respect, I would entreat him, and all artists, to remember how Turner's pencil passed from one range of subject to another, and never dwelt exclusively on any. He advanced onwards, with an indefatigable will, over land and sea, through water or fire, and mastered each as he went:—

> "O'er bog or steep, through straight, rough, dense, or rare,
> With head, hands, wings, or feet pursues his way;
> And swims, or sinks, or wades, or creeps, or flies."

No wonder that he thus attained that almost universal knowledge of nature, which is the chief feature in his prodigious excellence. I do not say that all artists can emulate Turner's flight; but he is a chief example to be kept in the mind's eye of all, and should be followed so far as the strength of the artist's wing will bear him onwards. I know that the temptations which beset a successful beginner to repeat himself are great; his first triumph often becomes his stumbling-block; whatever he may have succeeded in creates a demand; an order for a like production is given; that demand increases with his reputation, until the artist finds himself entangled in a maze of engagements which may fill the length of his purse but must narrow and choke his future.

Mr. Millais.

Mr. Millais is a noble example of one who early resisted the temptation I have just alluded to, and which must have beset him more closely than most other living painters; his range has consequently broadened with experience, and his power has strengthened with age. The two pictures which he exhibits in these galleries are among his later works, "The Sisters," and "The Knight Errant." They represent his present manner, and are worthy of a place among the finest paintings of our time. In "The Sisters" we see a group of his own children; they must be considered as portraits and not as an ideal picture. Whilst dwelling some time since on the paintings of Mr. Watts, now in this collection, I

touched on the difference of treatment required in works of pure imagination compared with those which more directly deal with the embodiment of any particular nature; the one, I argued, should take life in the abstract, the other in the concrete. In any fine portrait by the old masters, or by the masters of our modern school, the first impression made on our mind is the individuality of the person represented. Those who knew him in life should be able to say, "Behold the man. So stood he—that is his natural gesture;" or, "There is her very smile! I know that look of her eyes, the pretty parting of her lips;" or, as said of the Ghost in Hamlet, when Marcellus asks—

"Is it not like the King?"

Horatio answers—

"As thou art to thyself!
Such was the very armour he had on,
When he the ambitious Norway combated;
So frown'd he once, when, in an angry parle,
He smote the sledded Polack on the ice."

The resemblance, the dress, the look and action, are insisted on. Shakespeare, as was his wont, has gone to the heart of the matter, in words that paint better than colour. The power of seizing an individual nature is very uncommon, and requires a fine dramatic perception, combined with a great mastery over the means of painting. Both these qualities are possessed by Millais in a great degree of perfection. The work now in question brings the three "Sisters" into our presence as fresh and fair as they were on the summer day when their father first conceived the picture; their childish eyes look from the canvas with an expression never seen after early youth, when life has crossed hands with sorrow. The similarity of dress heightens the childish harmony of idea, and the azaleas in the background complete the circle of fresh and pure life. The technical excellence of this work is very great; the execution has been firm and rapid, the colour true and brilliant, and the force of light and shade sufficient for the subject. It reminds me in parts of Velasquez, but Millais has too much individuality of character to make it possible for him to paint in imitation of any one; he did himself an injustice when he attempted this kind of dance in shackles a year or two since, when he exhibited "A Study after Velasquez."

His other work, "The Knight Errant," touches on another kind of art, and enters the region of pure imagination. When a strong man attempts any feat of strength a measure of success will always follow; whether he wields the hammer or pitches a quoit, he will do so beyond the strength of most men; but the cast of his limbs generally disposes him to excellence in one kind of

Mr. Millais.

exercise beyond others; and if such is the predisposition of a man's body, so is the bias of his mind. "The Knight Errant" is a fine picture—very fine in parts, but not by any means equal to "The Sisters." It is not in the conception of his subject that Mr. Millais has failed. The dark and grisly wood, seen betwixt the hours of night and day, is fitted to the action of the figures. The knight divides with his bloody sword the cords that bind to a tree a naked lady, left there by robbers who have been scattered or slain. The lady leans painfully away; her clothes lie at her feet; one of the robbers has fallen dead over a sharp fragment of rock. The knight is finely conceived; he accomplishes the noble work of his hands with a respectful modesty that is very beautiful; the painful distress of the woman is also very natural and touching; the conception of the work could not be surpassed; but in the execution of his idea the strength of the imitator has diminished the success of the artist. During the prosecution of the painting the presence of nature (required in all art) has seemed to dominate him too much; the objects from which he was combining the story of his picture took such a possession of his mind as to force themselves on the canvas unchanged and unassimilated. The consequence is a realism which does harm to the fine conception. The naked figure of the woman, the trunk of the tree to which she is bound, the knight's face, the lines of the wood, and the general disposal of the background, have not sufficiently passed through the alembic of the artist's own mind; they are too much portraits of individual people and things, with their peculiarities and defects; this produces a painful incongruity between the subject and the treatment. I wish that in this respect the spectator could have contrasted it with some works of Mr. Watts not in this Exhibition—a naked figure of Daphne, for instance, exhibited in the rooms of the Royal Academy last year. There nature had been consulted to a degree not to be imagined by those who are unacquainted with the amount of close study hidden beneath a fine picture; the drawing, colour, light and shade, had all passed through many corrections from the real; but the artist had known how to select the forms of life as they passed before his eye—he was their lord and master, or rather their constitutional sovereign, not their slave. Nature served him as he directed, but according to law.

The right use of models.

Whilst on this subject, I would wish to be somewhat emphatic on the right use of models, and on the inherent difference between the treatment of portrait-painting and of works of imagination. To my mind, no portrait of a model should be introduced into a work of imagination, nor should a sitter become a mere model to a portrait-

painter; in the first case, the conception of the artist should predominate; in the latter, the subject should dominate the artist.

Mr. Leighton has two works in these galleries, "The Mermaid," and "Electra at the Tomb of Agamemnon;" the first done in Italy many years ago, the second painted within the last two years. These works will serve to show the characteristics of his painting; he was a scholar very early in life, and an accomplished one, in the school of Düsseldorf, from whence he went to Italy. It will be remembered that, on his return to England, he exhibited and obtained a deserved reputation for his picture called "The Triumph of Cimabue," which was purchased by the late Prince Consort. It was a very excellent work in drawing, colour, and composition. Any man whose artistic education begins under good guidance, from the first development of his mind, has a vast advantage throughout his after career; for, disencumbered of the preliminary difficulties which cramp the self-educated artist to his dying day, he is at leisure to deal with the more recondite problems of his profession, and to develop the ideas with which his imagination may be pregnant. The two pictures which Mr. Leighton has exhibited indicate at once the school to which he belongs; they are the works of an idealist; the period which has intervened between his two paintings is not marked by any change in the goal he seeks to attain; he has been faithful to his ideal, which is the embodiment of absolute beauty, whether in form or in colour. "The Triumph of Cimabue," which I before mentioned, was painted in Italy whilst Mr. Leighton was still under the influence of the early Italian schools. That work does not represent the true direction of his mind; only Greek art and Greek poetry seem to him to offer a clue to that abstract beauty he is in search of, and to their guidance he has delivered himself exclusively. He and Mr. Watts are both on the same quest, and both are followers of the genius of Greece; but it is to be observed that each has taken a different period of Greek art as the guiding-star of his efforts. Mr. Watts holds to the earlier works of the Parthenon, whilst Mr. Leighton attaches himself to the later Greek sculpture, of which the Venus de Medicis, the Apollino, and the Antinous are examples. He has chosen that period which is in greater sympathy with the European schools of the day; but, to my mind, the earlier Greek sculptures are a far nobler guide than those works which were produced in Greece in the decadence of her greatness. I pass on to Sir Noel Paton, who has no picture here, but to whom I would allude as an instance of an ideal painter whose bias has led him in an opposite direction to that of Mr. Leighton and Mr. Watts. His ideal is not Greek, but Romantic; Mr. Leighton.

Mr. Leighton.

though full of beauty and imagination, his works are unfortunately not well known by the English public. The art of Mr. Burne Jones is of a like stamp, but of a more mediæval tendency; he is not equally familiar with oil and water-colours, and consequently several of his finest works are in the more perishable material. I do not find any of his paintings on the walls of the Exhibition, which is very much to be regretted, as he is certainly one of the finest colourists of our rising school, and will probably leave his mark on the art of the next ten years.

Many painters necessarily unnoticed.

Whilst considering the several artists that I have brought under notice in these pages, it has been my object to mark those whose influence has given a direction to British painting, or those who have enabled me to illustrate my meaning to the reader. In doing so, I have necessarily omitted a number of painters; not because their works are less noteworthy, but that they do not come within the scope of my argument. For a like reason I have not entered on the field of landscape-painting, so popular in this country, but which is undergoing very little change. Turner left the art very much in the direction which it still follows. The pre-Raphaelite reform brought back its students more closely to Nature, and disabused the public of the false worship instituted by Ruskin, of Turner gone mad; men of discernment easily drew the line betwixt the works of a mature genius and of eccentricity, and reverted to his earlier teaching. There are enough fine works in landscape on the walls of the Exhibition to show how active and penetrating is the influence of inanimate nature on the British mind, and with what great success the art of landscape-painting is cultivated. To recite the names of the different artists, or criticise the pictures deserving of mention, would swell these pages to a good-sized volume, and would not advance the object I have in view.

Wherein progress may be discerned.

To recapitulate: the progress made by the British School of Oil-painting during the last decade appears to me principally remarkable for the growing influence of water-colour painters on oil-painting, and their advent among its ranks; for the increasing influence of the Ideal School of Art, typified by Mr. Watts and Mr. Leighton; for the disposition I discern among painters to take a wider range in their subjects, which now include the production of ideal composition, of portrait and landscape-painting, and also the study of the Sculptor's art. Finally, the general direction of the school broadens towards a more liberal view of the profession, and many shackles are already broken; the others will soon fall; the several close societies which have upheld their own interest to the exclusion of the outer world are changing their construction; the large

galleries now opened to the public will give unlimited space to the yearly art-productions of the country, without favour or affection; and the great desideratum for art—namely, publicity in a fitting place for its appreciation—will from henceforth be secured.

The continental schools: Belgium.

Turning for the present from our British gallery to those of our continental neighbours, I will first glance over the works of the Belgian school, in the North Section of the Eastern Galleries. I then propose to pass over, without further comment, the intermediate rooms dedicated to miscellaneous collections from Bavaria, Prussia, Denmark, Portugal, and other countries, where some excellent pictures are to be seen, but too few in number to illustrate their different national schools. Finally, I shall dwell somewhat on the Gallery numbered XX. in the East Wing, where the works of the French school that have found their way to England, in spite of the dislocation of French society, are to be seen, interspersed with others that had already found a place in English galleries, and for the exhibition of which we are greatly indebted to the efforts of Mr. Wallis, assisted by two or three French artists now in our country. The first impression received from the Belgian Gallery is the great average excellence of the works exhibited. Pictures of subject, portraits, and landscapes are all above the average when compared with a like exhibition of English paintings; a workmanlike completeness reigns throughout; every artist has approached near to his intention; he makes no miserable boggle in the effort to express his idea. This power, which a knowledge of his means places at the disposal of the Belgian painter, is in marked contrast to the generality of our own artists; it arises from an early training under approved masters chosen by the pupil himself, and carried out in company with fellow-pupils of a like bias.

Influence of old Dutch school on Belgian painters.

The old Dutch school has evidently had an influence in forming many of the landscape-painters here represented. Two sea-pieces by Clays (Nos. 777 and 778), entitled "The Coast of England, near Yarmouth," and "Becalmed off the Scheldt," remind me of some of the works of Vandervelde and Cuyp; the mode of handling is, however, more French than Dutch. Two works painted by Lamorinière (Nos. 818 and 819) have been conceived under the influence of Hobbema; and No. 818 I consider to be one of the finest landscapes in the present International Exhibition; the pitch of the colour is fine and powerful; the relations between the sky, the middle distance, and the bank of trees wonderfully true; and the finish modest and complete.

Baron Leys and his pupils.

There are no works of Leys in this collection. His influence, however, appears in the productions of his pupils, Chauvin and

Baron Leys and his pupils.

De Vriendt; the latter (in No. 41) represents an incident in the life of Margaret of Scotland, a picture interesting as a specimen possessing all the peculiarities of his master's manner. The close imitation of early German art, its tricks of drawing and colour, its naïve attitudes and composition, its architectural backgrounds and minute details, are all there; the old German spirit is resuscitated and revived on modern canvas. But why raise the dead, or trammel young minds with a style of art that no longer embodies a living idea, but has passed from earth with the society which gave it life? Leys was a great painter, in spite of the wrong direction he followed; he reflected the thoughts of dead men, and his pupils suffer doubly, being, as it were, but reflections of a reflection.

Relations of Belgian and French art.

Another influence, very visible in Belgian art, is that of the revolutionary school, headed by David, which, following in the rear of the French armies, spread over the whole of Europe, and dominated for many years not only the Belgian, but the Italian and German schools. In the present gallery, we have constant indications that the schools of France and Belgium are still closely allied, not only in historical painting, but also in the "tableau de genre," of which there are here some fine specimens. "The Rehearsal," by Robert, "A Dream after the Ball," by Baugniet (contributed by H.R.H. the Prince of Wales), and "Miss Fauvette," by Stevens, are among the most interesting. The portraits are not worthy of the collection, and although some are well painted, yet they are, as a whole, displeasing in style and colour.

Exhibition of French art.

The French Gallery has a very imposing show of pictures, brought together with wonderful energy and success, when we consider the difficulties which the collectors had to overcome. Their exhibition includes various works painted during the last half century by Isabey, Ingres, Scheffer, Delaroche, Prud'hon, and others of a still older generation. Beside these hang many specimens of the present school. I do not propose to submit this gallery to a close investigation, but I would rather call attention to a few works of great mark, which must attract general notice.

nault.

Amongst these I would give the place of honour to the two pictures by Regnault, "The Portrait of Marshal Prim," and "The Execution in a Moor's Palace." These pictures are the more remarkable from the extreme youth and sad fate of the painter, who died, shot through the head, in the last sortie from Paris. "The Execution in a Moor's Palace" is very revolting in subject, and is carried out with an unflinching hardihood which belongs to extreme youth. Let us acknowledge the masterly drawing and force of

colour, especially in the figure of the executioner, which is above the size of life. Had the artist lived to shake himself clear of the painful attraction which horrific subjects possess for certain minds, we might have predicted for him a great and noble career.

Gerôme.

The picture by Gerôme, in the French Gallery, is not such as can give any just idea of his merits; very fortunately he has exhibited two paintings this year in the Royal Academy, "A Vendre," and "Cleopatra brought to Cæsar in a Carpet." The first represents a couple of female slaves, a monkey, and a parrot, grouped together, and all for sale in the market of Cairo. The melancholy abandonment of the lighter-coloured woman, the comparative indifference of the negress, and the monkey's lively content, are all marked features in the picture. The contrast of expression is painful in the extreme; the members of the group are all equally at the command of the highest bidder, and the scathing satire of the artist, which is very fine, is directed against the state of society where such a traffic can exist. His picture of Cleopatra is a work of great thought and much knowledge; the painting and drawing are very fine in parts, but the picture is by no means a pleasing one; there is a cynicism in all the works of this great master, which leaves a painful impression on the minds of those most capable of appreciating him. His pictures of "Phryne," "The Augurs," "Ave Cæsar," and many others, are the results of a like spirit, and are conceived by one who evidently despises and despairs of the state of society in which he lives.

Meissonnier.

The limits of our space allow me only to call attention to two other works of the French school, both by Meissonnier. Though he is well known in this country, these two gems are well worthy of remark. As a miniature-painter of subjects Meissonnier has never been equalled. The perfection of his pictures does not depend merely on their execution, but on those qualities which belong to painting in general; his marvellous veracity of colour, drawing, and expression, are not to be surpassed, and the impression left on the mind of the observer is fitted to raise the speculation whether, were the artist to transfer his labours to a larger scale, he could still command the same success. For, if so, it would be difficult to over-estimate the triumph that would then be his.

Lessons of the Exhibition.

Before concluding this brief review of the European Schools of Painting, brought into juxtaposition in the present International Galleries, I am led to consider the advantages that may be derived from the teaching they supply. A comparison between the different schools must bring its lesson home at once to all, and

Lessons of the Exhibition.

to us in particular. Our demerits are not difficult to discern; they are more on the surface than those of our continental neighbours, and happily admit of a simple remedy. It will strike all unprejudiced judges that our faults arise principally from the defective education of our students; the want of knowledge disables their early efforts, and cramps their course throughout their whole career. This blot is the more extraordinary when we consider the practical character of the English race. We are not accustomed to put our artisans to work before they have become thorough masters of their tools, and of the method of their work. In higher spheres of life, the lawyer is obliged to pass through a state of pupilage before he commences the practice of law; the doctor, the priest, and the soldier, all undergo a period of probation under trained instructors; our artist alone stumbles onwards, without guidance or direction. The effect is the more disastrous, because he, like the musician, must unite a dexterity of hand, resembling that of the mechanic, with that mental education of a liberal profession which enables him to see and understand nature, and to compose works of imagination and art. Owing to this want of an early and systematic training, the works of our greatest masters are often unequal; their drawing and colour halt behind their conception in a manner that a complete art-education would have made impossible. Through this cause some of the finest works of our school are falling to pieces, the mechanical knowledge of the artist having been at fault; in others, the colour flies, the glazes change, the varnish cracks, a thousand misadventures arise. And, finally, from this same cause, the school makes no aggregate advance. In the days of mediæval art each master was the centre of a group of pupils. The experience of his life became the possession of his school; his followers, in their turn, bore onwards, and added to the traditions he had taught, so that the knowledge accumulated from generation to generation became the means of raising art to a height which it has never since approached.

In conclusion, I would urge all those artists of our own school who appreciate the pain of an unaided struggle with the difficulties of painting, but who have themselves attained at last a complete knowledge of their profession, to devote some part of their time to such pupils as may seek their guidance. The schools of the Royal Academy and of the South Kensington Museum are excellent in their way; the South Kensington, in particular, gives instruction in painting, sculpture, and architecture, with their various offshoots; but these schools are not capable of guiding the student beyond the initiatory period of his profession, after which a fostering hand is urgently required.

MEMORANDUM.

The following Note is appended to the Official Report on Painting in Oil at the request of Baron t'Kint de Roodenbeke, President of the Belgian Commission :—

Le jugement porté dans le rapport officiel de MM. les Commissaires britanniques de l'Exposition internationale de Londres, sur les œuvres des artistes belges qui figurent à cette exposition, est, dans ses termes généraux, honorable et flatteur pour les exposants et pour l'Ecole elle-même.

La Belgique a reçu et reçoit encore chaque jour de la nation anglaise trop de témoignages de sympathie et de cordiale estime, pour que les appréciations à faire du mérite de ses artistes pussent être inspirées dans cette circonstance par un esprit autre que celui d'une impartialité éclairée et bienveillante. Mais dans des questions d'art et de goût, par leur nature, si sujettes à contradiction, il est bien difficile qu'une divergence d'opinions ne se produise sur un point ou sur un autre et ne donne lieu à quelque réclamation.

Au surplus la contradiction n'a pas été interdite aux représentants des exposants étrangers, puisque grâce à une mesure d'une loyauté parfaite, il leur est permis, des avant la publication définitive des rapports officiels de MM. les Commissaires anglais, d'apporter aux jugements de ceux-ci auxquels il ne pourrait être adhéré, toutes les réserves et restrictions désirées.

Nous ne réclamerons le bénéfice du droit qui nous est concédé que pour faire une seule rectification aux appréciations de l'honorable Sir Coutts Lindsay. Mais elle est essentielle et les quelques observations que nous avons à présenter en outre s'y rattachent naturellement.

Ce qui frappe d'abord dans le compartiment belge, c'est, dit-on, une moyenne considérable d'œuvres méritantes. Chacune d'elles accuse la main d'un artiste maître des moyens qu'il emploie. Partout on sent que le peintre a fait, ou à peu près, ce qu'il a voulu faire. Cette habilité d'exécution dont on signale l'absence en général chez l'artiste anglais par opposition à l'artiste belge provient chez celui-ci, dit-on encore, de son éducation première sous des maîtres experts et choisis directement par l'élève lui-même travaillant dans la compagnie de jeunes émules animés d'un même zèle.

Mais il y a bien encore à cela sans doute, une autre raison ? Ce savoir qui passe d'atelier en atelier, cette éducation pratique qui sert de première initiation au peintre, ne reposent-ils pas sur un fonds commun traditionnel en harmonie avec les dispositions natives et originales ? Ce fond traditionnel a bien pu être abandonné et négligé pendant un certain temps, mais il ne s'est jamais complètement perdu. Depuis le nouvel essor de la peinture en Belgique, à partir de 1830, il se dégage chaque jour de plus en plus par le retour patriotique des esprits vers tout ce qui tient aux origines nationales.

Si, par suite des événements, des influences étrangères ont pu peser sur le génie flamand et l'étouffer, celui-ci ne s'est jamais laissé absorber. Aussi peut-on dire que c'est surtout par l'étude de nos vieux maîtres appuyée sur celle de la nature qui était leur grande inspiratrice, que la plupart de nos artistes les plus distingués sont rentrés dans la pleine possession des secrets de leur art. Ils l'ont fait sans perdre par des ressemblances de famille rien de leur caractère et

de leur propre individualité. C'est là ce qui distingue l'Ecole belge de peinture parmi les Ecoles contemporaines et assigne à ses tendances une portée particulière.

Ces faits ont été aperçus à Londres mais d'une manière incomplète et sans qu'on s'y soit attaché à en faire ressortir le véritable caractère.

"La vieille école flamande,—dit le rapport—a évidemment exercé une influence sur plus d'un des paysagistes ici réprésentés." Mais c'est assurément trop peu de ne citer à la suite d'une telle remarque que les seuls noms de MM. Clays (peintre de marines) et Lamorinière, alors que des artistes de la valeur de Fourmois, ce talent si essentiellement flamand, de De Schampheleer, de Melle Collard, et d'autres encore confirment cette remarque. Mais celle-ci ne s'applique pas seulement au paysage: la peinture de genre et même la peinture d'histoire se sont transformées sous la même influence.

Faut-il rappeler le rôle considérable de Leys, cet artiste *ingénieux* qui, selon l'expression d'un écrivain français, n'a fait qu' hériter du bien paternel, ne copiant pas ses ancêtres, mais leur ressemblant par pente naturelle et par instinct? Nous comprenons que l'honorable Sir Coutts Lindsay n'approuve pas les tendances de ce maître, tout en faisant nos réserves à cet égard. C'est toutefois établir faussement la filiation des talents que de représenter, comme descendant des peintres primitifs allemands, les deux jeunes artistes qui suivent de loin les traces de Leys, sans être ses élèves, ni même à proprement parler ses imitateurs. Les frères De Vriendt n'ont pas eu à sortir de leur vieille Flandre et de cette vieille école des Van Eyck pour trouver des exemples de ces arrières-plans architecturaux et de cette riche profusion de détails que leur pinceau aime à caresser.

Une autre assertion qui n'est pas plus admissible que la précédente, attribue à "*l'école révolutionnaire*" de David une influence *très visible* dans l'art belge. Disons d'abord que la réforme inaugurée par David a consisté à donner pour base aux représentations de l'homme l'étude de la statuaire antique. Les écrits des Winckelman, des Heyne et autres grands archéologues qui remirent l'antique en honneur au XVIIIe siècle, furent le point de départ de cette réforme qui ne réussit guère en Belgique.

Ce ne fut qu' à partir de 1815, pendant le temps de son exil à Bruxelles, que David exerça une action directe sur les artistes belges. Mais déjà Herreyns avait repris à l'Académie d'Anvers avec une véritable supériorité la tradition interrompue du grand art flamand. D'un autre côté les élèves de David n' embrassèrent pas assez aveuglement, sauf un [Odevaere], les principes du maître pour y sacrifier tous leurs instincts. Après dix ans de séjour à peine, David mourait, trop tôt évidemment pour laisser une trace profonde. Au même moment toute une génération animée d'un esprit nouveau se levait. Ommeganck avait évoqué le souvenir de Berchem. La nature allait reprendre son empire: Van Assche, De Jonghe, Verboekhoven entrèrent dans la voie. Van Regemortere, Moerenhout, De Braekeleer, rivalisèrent d'efforts dans le genre immortalisé par les Jan Steen, les Wouvermans, les Ostade et les Teniers. Le talent du plus célèbre des élèves de David, Navez, s'était profondément modifié en Italie. L'influence du maître ne survivait même pas à l'homme. Tout présageait que le génie flamand allait ressusciter quand 1830 arriva. On sait ce qu'il est devenu depuis. Après les succès obtenus aux expositions universelles de 1855, de 1862, de 1867, l'exhibition internationale actuelle témoigne assez de sa vitalité.

Notre école de peinture refleurit par l'effet de la sève qui est dans l'esprit de la nation. Nos peintres, fils des "*flamands nés coloristes*" vivent de leur propre fonds. C'est donc une erreur manifeste que nous devons rectifier que de considérer les œuvres de MM. Alf. Stevens, Baugniet et Robert, comme des spécimens heureux d'un compromis entre l'art français et l'art flamand. MM. Stevens et Baugniet habitent Paris, il est vrai; mais ce sont des peintres flamands qui peignent des types parisiens.

REPORT

ON

PAINTINGS IN WATER-COLOURS,

In the International Exhibition of 1871.

By SAMUEL REDGRAVE, Esq.

Art of painting in water-colours peculiarly English.

The art of painting in water-colours claims to be peculiarly English, though the early Dutch painters in oil did exceptionally produce some good works in that medium: yet, as a branch of the art-profession, the school of artists using transparent colours on paper, and adopting a manner peculiar to their use, arose in this country, and gave to the new art a name and a celebrity it had not hitherto known.

Its origin

The origin of the art may be traced to the spirit of antiquarianism which was evoked towards the latter half of the last century, and found employment for the feeble draftsmen of the time in perpetuating the ancient ecclesiastical edifices and mansions, so many of which were fast falling into decay. They were the illustrators of antiquarian works, and their chief merit lay in the accuracy with which they rendered their subjects. Many of their drawings found a place in the Exhibitions which had their origin in London in 1760. They are described in the catalogues as "tinted" or "steyned" drawings, terms which correctly define their art-manner; for, commenced in Indian ink, or some greyish neutral colour, and thus finished so far as regards light and shade and form, some colour was added by a weak tint thinly washed in. Drawings of this early character, of which few have survived, are chiefly valued by collectors who feel an interest in the development of the water-colour art. The painters are often unnamed or unknown. Some of their drawings are not without merit, and at least prove that with their simple materials they sought such means of

improvement as were within their reach. It was fortunate, too, that their very occupation brought them face to face with nature, and that their subject, frequently laborious from the necessity of imitating its details, would present itself under the changing influences of sunlight and shadow, the brilliance of noonday, and the grandeur and breadth of evening—with, sometimes, groups of men and animals—all allurements to study, inviting to higher excellence. Thus, water-colour art found its true beginning in topography, and, as the artists improved, they may be traced in their works to have given greater range to their art, by their views from the mountainous scenery of Wales and the lake districts of England.

Early painters.

When names of painters still known are reached, their first works were topographical; they were, in fact, the illustrators of the antiquarian publications of the time. Of these artists may be distinguished Pars (1742—82), Thomas Sandby (1721—98), Rooker (1743—1801), Girtin (1733—1802), who has always been associated with Turner, R.A., as the founder of water-colour art, Dayes (*d.* 1804), Paul Sandby (1725—1809), and Hearne (1744—1817). In their later manner Girtin, Dayes who drew the figure well, and Rooker, were distinguished, and their works are now much prized. Cozens (1752—99) was of the same time. Early in life he travelled in Italy, and, though his art was confined to the tinted manner, he surpassed all his contemporaries; and, in some of his finest works, attained an excellence which, for poetry, tenderness, and beauty, has hardly been surpassed, yet even his name is known only to the few. To this brief list should in justice be added the names of Warwick Smith, and Payne, of Plymouth, both of whom, commencing in the tinted manner, assisted greatly in the true development of the art.

Progress of the art: the Royal Academy.

Meanwhile the artists were asserting themselves in England. The Royal Academy was founded 1768; the two Sandbys were among its first members, and were followed by Pars and Webber. Thus works in water-colours at once obtained a recognition and a footing in the Academy Exhibitions; and eventually the council-room was devoted to the display of the rapidly-improving art, and crowds were attracted, it is reported, by its novelty and excellence. Here were seen the early works of Girtin, Turner, Westall, Callcott, Reinagle, and others, for the disciples of the new art were rapidly increasing.

The Society of Painters in Water-colours.

Later, as the number of works for exhibition increased, a less desirable place on the Academy walls was assigned to the water-colour painters, and, encouraged by their numbers, and the public

favour, they determined to establish an Exhibition of their own. The Society of Painters in Water-colours was founded in 1804. It comprised sixteen members, increased to twenty before the opening of the first Exhibition in the spring of 1805. There were already many distinguished men among the professors of the art, and the chief of them became members of the new Society. Turner, one of the most eminent, had been elected into the Academy in 1802, and was consequently not of the body. But the Society included the well-known names of Barrett (*d.* 1842), Cristall (1767—1847), Glover (1767—1849), Havell (1782—1857), Hills (1769—1844), Pyne (1770—1843), John Chalon (1778—1854), Varley (1777—1842), and Stevens; and these artists were afterwards joined, among others less distinguished, by De Wint (1784—1849) and Copley Fielding (1787—1855).

The Society of Painters in Water-colours.

On the foundation of the Society the art was only slowly emerging from the early tinted manner. The materials which were necessary to its development had hardly kept pace with the demands of the artists, whose colours—originally almost restricted to red, yellow, brown, blue, and capable of producing mere stains only—now showed marked signs of improvement; greater purity, power, and variety were attained, and paper of larger size and quality, especially suitable to their wants, was manufactured for the use of the artists. The new body found favour with the public—their Exhibitions were well attended, and their pictures found purchasers. In their works they attained great brilliance and purity of colour, with finish and great breadth of treatment, by the simple use of transparent colours. They recognised the true limits, in point of size, to which their art was necessarily restricted by their materials, and did not attempt to reach an appearance of power foreign to its truths by increasing the size of their works, or the use of body-colours or other inharmonious materials. In all these matters Turner, R.A., was with them. He never attempted to exceed the true limit of size of which the art is capable. With transparent colours he produced the most refined gradations of tint, the most brilliant effects of light, and, eschewing the use of body-colours himself, he declared that water-colour painting would be totally ruined and lose all its individuality and beauty by the bad practice, then first tried, of mingling opaque and transparent colours.

Improvement in materials.

With some changes, and with little exception, the Society maintained its high position, and—recruited by such artists as Cox (1783—1859), Robson (1790—1833), and W. Hunt (1790—1864)—was the acknowledged exponent of the state of the water-colour art. Biding by its true principles, and within the true limits of which it was

Further changes in style: present use of body-colour.

Further changes in style: present use of body-colour.

capable, its members apparently reached the perfection of which their art is capable. Their practice admitted of no mixture of opaque and transparent colours. If the former were used at all, it was only exceptionally to redeem a mere touch of high light, or in the same way to supply an afterthought. Then a desire arose, chiefly in regard to the appearance of their Exhibitions, that works of a larger scale should be contributed; but the art itself found no improvement in this expedient, while it probably resulted in the misleading attempt to rival the very different qualities attained by the larger scope and medium of the painter in oil. In this attempt the water-colour painters have been led within the last few years to the use of body-colours—not for the principal lights only, not even restricting the use to foreground objects, but extending it alike to mid-distance and sky; and, probably from the illusory feeling that this practice gives an advantage on the walls of an Exhibition, it seems rapidly gaining ground in the profession. The present state of water-colour art appears, then, to be one of transition, its painters fast abandoning the ground on which many eminent artists have established an enduring reputation.

The art at present: its excellences and its defects.

In speaking comparatively of the existing art, it is proper to state that in variety of subject and treatment it has distanced the art of its predecessors. The artists have attained a more accurate power of drawing the figure, introducing it, not merely as a rustic accessory, but in sacred and classic subjects, and with great ability in domestic scenes. They have painted cattle subjects, in which the animals are drawn with true knowledge of form and appreciation of nature; and subjects in which architecture is the principal feature, treated with great correctness of proportion and beauty, and have thus extended the range of their art. But there is an absence of marine subjects, in which their earlier brethren, stimulated by passing events, found so many incitements for their art in naval fights and victories. Reverting to the use of body-colours, it may be stated that both portraiture and landscape were practised in that medium before the use of transparent colours. The portrait works of that time and their painters are well known, as are the landscapes of Taverner—so much praised by Walpole—Zucarelli, Walmisley, Paul Sandby, and others; but their works were *entirely* in the tempera medium, pursuing the manner peculiar to its use, which is still the art of the scene painter and the ornamental painter. The present transition state of the water-colour painter's art, however, is the peculiar attempt to combine a general use of opaque colour with the transparent colours of his original art—thus mixing the two mediums. Speaking of this attempt as experimental and transitional only, its first effect seems to be to change the individual

manner acquired by the artist, to render the flesh-tints black and dirty, the tints generally heavy and woolly, particularly in the distances and the sky, the execution loose and slovenly, losing all its true beauty and finish, though in the hands of some artists it will be admitted that body-colour is much more ably used than by others. It gives, with little labour, the appearance of power and dash, with great command of light and shade, but with the sacrifice of the most esteemed characteristics of water-colour art. That the practise of this mixed art is rapidly gaining ground will be at once apparent in the present Exhibition, but more particularly so in the gallery of the Water-colour Society now open, where the works are exclusively of the present date. With the fear that the esteemed art of painting in transparent colours may suffer in the attempt to reach higher excellence by the mixture with body-colour, it is premature to speculate whether it may be supplanted by a higher and a better art.

The art at present: its excellences and its defects.

For the arrangement of the water-colour art the Centre Western Gallery was appropriated. It measures 193 feet long, by 33 feet broad. Starting from a moulding, 2 feet 8 inches from the floor, the hanging space calculated to the cornice line is 10 feet 5 inches high, giving, exclusive of the apertures, a total clear hanging space of 2,383 square feet. But the average height of the pictures, as arranged, does not exceed 8 feet 9 inches, so that in the excellently lighted gallery every work may be fairly deemed within the range of vision. In this space 244 water-colour pictures are arranged, with 13 in the two adjoining towers, and in the gallery of the Royal Albert Hall, subsequently appropriated to the purpose, 237, so that the collection comprises 494 works, an unusual proportion of which are of exceptionally large size. Of the gallery space filled by the water-colour pictures, it is estimated that at least three-fifths is occupied by the frames and mounts alone, by the pictures themselves not two-fifths; while, in some instances, a small drawing, from the vain desire to give it importance, does not fill one-fifth of the space which, with its frame and mount, it takes up. This leads to the consideration of some difficulties in the arrangement for exhibtion connected with the present modes of framing. It appears that the artists are divided in opinion as to the relative advantage of a gilt or a white mount, either of which may probably be best as applied to a different style of art. The first object in hanging pictures will naturally be that those of the greatest merit, especially when it depends upon finish and expression, should be brought conspicuously near the eye; yet the symmetry of the whole arrangement can hardly be deemed secondary when the general effect of the gallery is considered. A third element is, however, added by the white mount among the gold, particularly when of

The Exhibition galleries.

The Exhibition galleries.

inordinate size, causing a spotty, unpleasant, informal appearance. This has given rise to a regulation that works for exhibition shall be framed close, or with gilt mounts only, to the exclusion of white margins—a rule which it may be well to consider in regard to the future international collections. It has been stated that there is a limit to the size and power of water-colour drawings, and the same may be said as to the unbroken extent of space upon which they may be most advantageously displayed. By their lightness and elegance they find their best places as the ornament of the dwelling-room rather than the gallery. When covering an extended space the general appearance is monotonous and unvaried; the eye desires those points of attraction—that variety and force—which is found in the larger medium of the oil-painter, the consciousness of which may have led to attempts at rivalry by increase of size and the use of body-colour. The continuance of one long, unbroken surface has been cleverly avoided in the Water-colour Gallery of the South Kensington Museum, and also by the architectural features of the Art Gallery of the Albert Hall, where one-half of the present collection is arranged. The wall-space is here divided into bays by handsome panelled pilasters, which greatly aid in the decorative and more effective arrangement of the pictures, by separating them into groups, which may be readily made more symmetric and attractive. This noble gallery, indeed, seems well adapted to contain the water-colour portion of future exhibitions. The light, yielding only to the unequalled excellence of the main galleries, is very good—the height appropriate, without loss of space. There is, however, some reflexion from the centre light of the dome, which, it is assumed, might be easily remedied.

Miniature painting.

Connected with the art of the water-colour painter, an attempt has been made to exhibit the art still practised in miniature. In this country miniature-painting, which found its true origin in the art of the missal-painter, dates from the commencement of the reign of Queen Elizabeth, and was the first art practised by Englishmen with success. From that reign to the present a succession of miniature-painters, all natives and practising here, have not failed to maintain the great pre-eminence of the art, with the exception of the dark period in art commencing with the 18th century. Confined to card or vellum, and later to ivory, their works have never been surpassed; but miniatures in enamel did not attain the same excellence here as on the continent. It is to be regretted that the art of miniature-painting so highly esteemed, and of which examples are sought at extravagant prices, has been almost superseded by the attractions of photography, which

Miniature painting.

has, however, the merit of bringing a miniature portrait within the reach of all. The miniatures contributed have been separately arranged in two glass cases placed in the water-colour gallery, and it is a true gratification to point out that the art is still practised by painters who, with the encouragement their predecessors received, would be able to maintain the supremacy which for so many generations they maintained. In the same cases are also exhibited two or three examples of miniatures produced by coloured photography. In these the artist has united with the photographer, and on a base prepared by him has completed a coloured miniature. The best works of this class are certainly pleasing and pretty in character, but the process cannot be disguised to the practised eye, and can never rival the work of the true artist. It is far, however, from our wish to disparage them. They unquestionably afford pleasure and satisfaction to thousands, though they have superseded a most beautiful art of the highest excellence.

Foreign works.

Finding their place, according to their nationality, in different parts of the Exhibition, are a few works in water-colours, exhibited by continental artists, but not, up to this time, exceeding twenty. They do not, in any case, exhibit that development and treatment which would arise in a more general practice of the art, but seem rather the occasional work of a painter in oil. The numbers are, however, too few to warrant any criticism or lengthened remarks upon the position the art may have obtained. Though it is well known that water-colour painting has been practised in Paris with much ability, yet only two or three examples hang on the Exhibition walls. From Germany, Denmark, Norway, Sweden, and Hungary a mere example has been contributed—those of the latter two countries only, Sweden especially, approaching the manner and treatment esteemed in the English school.

Influence of the Art.

In conclusion, it may justly be added that water-colour art can well claim its share in that spread of cultivation which has improved the public taste, and that general appreciation, on the part of the purchaser, of design, form, and colour in every article of wear and use, which enhances their value, and is the true stimulus to the manufacturer. The materials of the art—so portable and immediately at hand; so simple as to be of the readiest use; which may be used in the drawing-room as well as the studio—have allured the first attempts of many who have afterwards attained eminence, and have surely had their influence on the general progress which all are now prepared to recognise.

REPORT ON MISCELLANEOUS PAINTING

In the International Exhibition of 1871.

By Sir M. DIGBY WYATT, M.A.

Slade Professor of Fine Art at the University of Cambridge, etc., etc.

Ancient association of painting with structure.

In the palmiest days of Art—Classical, Mediæval, or, as revived under the influence of the great masters of the Renaissance—the highest manifestations of the painter's skill almost invariably assumed the form of association with structure. His aid was called in to explain and, as it were, tell the story of the scope and purpose of the building his work adorned. What was then the rule has become, now-a-days, the exception. The picture produced in the artist's studio is sold to either the first comer or the highest bidder, and removed at the will or caprice of the purchaser, to be hung, possibly, in some position for which it may be entirely unsuited.

Modern paintings chiefly easel pictures.

The portability of modern pictures, for the most part painted in oil or water-colours upon canvas or paper, has operated to their detriment in three essential particulars. Firstly: it has tended to make them pretty rather than sublime, developing *genre* painting and discouraging historical. Secondly: it has tended to engender such a limitation of scale in design as to keep down pictures to sizes incompatible with the display of a great artist's power upon any large scale. And, thirdly, it has tended to the isolation of each conception of a painter's genius, instead of to that concatenation of ideas which best finds scope for development in a well ordered series of subjects, all culminating in, or working towards, the illustration of some great truth or law, divine or human; or to the record of some noble drama, big with the fate of nations or of men.

Anomalies of modern art partly due to this cause.

From this very portability of modern pictures arise the peculiar, and often ludicrous, inconsistencies which make our leading picture galleries so often tissues of strange incongruities. Close to a "Holy Family," by Andrea del Sarto, hangs a rollicking "Satyr with Wood Nymphs," by Poussin. The decent "Burgher's Wife," by Rembrandt or Bol, seems scandalised by proximity to the nudities of Titian or Correggio, and the "tipsy mirth and revelry" of Jan Steen or Brauwer, of Teniers or Ostade, form strange pendants to the spiritualities of a Fra Angelico, or the asceticisms of a Morales.

When we look to the anomalies of contemporary art, they seem to us scarcely less striking, and we have only to glance along the walls of the galleries of the International Exhibition to meet with contrasts of style, purpose, scale, subject, and manner, entirely subversive of repose, and calculated to fill the mind of the spectator with the notion that the painter's art is fitted specially to minister to whim and caprice, instead of to impress upon the imagination the noblest lessons derivable from the artist's profound study of beauty, moral no less than physical.*

Another aspect, under which the current predominance of easel over mural pictures may be considered, is that which convinces us of the twofold prejudicial effect it has upon art—depriving architecture, upon the one hand, of what, in the past ages of initial vigour, constituted its noblest adjunct and embellishment, and enfeebling painting, upon the other hand, by limiting its sphere of development, and rendering it comparatively purposeless.

Revival and progress of structural decoration by painting.

On all these grounds we cannot but hail with great satisfaction the evidences of progress in miscellaneous painting—in forms suitable for such mural decoration as will defy the vicissitudes even of our climate—which reveal themselves in the galleries of the Exhibition, alike in those appropriated to the illustration of the fine arts, and in those which mark the notable advance made of late years in ceramic industry.

Illustrations of other directions in which the artistic mind has been seeking outlets for the pent-up power which no doubt exists in this country, for the production of historical paintings on a large scale, in the mural form, are conspicuously absent from the present Exhibition. Fresco, tempera, encaustic, and even soluble silica painting, all seem abandoned; and ceramic, glass, and mosaic painting almost alone make up the representation of mis-

* It may become a serious question whether the large spaces open to Pictorial Art in an International Exhibition may not afford an excellent occasion for a systematic classification of subjects and schools.—ED.

cellaneous painting—*i.e.*, of painting other than in oil or water-colour—now under review.

As each of the three last-mentioned varieties will, no doubt, be fully treated of by reporters specially selected for their knowledge, not only of the technical, but of the theoretical aspects under which those most important branches, alike of industrial and fine art, present themselves, I need scarcely do more than passingly allude to them.

Permanent polychromatic embellishment

As an architect, however, I cannot refrain from noticing the evidences specially afforded by Messrs. Minton & Co., Messrs. W. H. Simpson & Sons, and Messrs. Maw & Co., of their power to contribute novel and beautiful varieties of permanent polychromatic embellishment to the resources upon which the architect of the 19th century may draw for the enrichment of the structures he is constantly called upon to design. Great as is the progress in manufacture shown by each of these firms, their advance, and especially that of Messrs. Simpson & Sons, is distinguished on this occasion by the facility with which they wield the elements of the architectonic treatment of their material, and the skill with which they have learnt so to temper brilliancy in parts with masses of balancing neutral tints, both in high lights and deep shades, as to produce an effect of richness combined with sobriety and good taste. This is very conspicuous in several of their chimney-pieces, and in some of their dados. The staircase lining they exhibit in the Ceramic Gallery, and a pilaster with boys, fired without glazing, standing near it, are novelties well worthy the attention, not of architects only, but of the employers of architects as well.

Ancient use of coloured faïence.

The reader will scarcely require to be told that the form of miscellaneous painting he will recognise in certain of the admirable ceramic wares of these manufacturers, and its applicability to architecture, is by no means a creation of to-day.

In the early part of the middle ages the use of coloured faïence and enamels was much in vogue amongst the architects of Italy and the East. We find them in various colours (though green is most frequently met with), and blended with the stone-work and architectural details in the façades and friezes of the buildings of that period.

In the West.

The little church at Athens, dedicated to St. Theodora, which dates from the early ages of Christianity, is one of the oldest examples known of this kind of decoration; and in a church at Pavia, dedicated to the same Saint in the 11th century, we find a great number of ornaments in this style, enamelled plaques of

In the West.

various colour being introduced amongst the stonework of the ornamental portions of the building. Some of these have simple interlaced designs, very neatly executed upon an extremely white ground; others are of single colours, as green, red, brown or blue.

The church of St. Michael the Elder, also at Pavia, and built about the same time as that of St. Theodora, though covered with sculpture of the rudest description, has some coloured enamelled plaques inserted in the stonework of the façade. Many other buildings, dating from the 11th to the middle of the 15th centuries, may be cited as examples of the diffused use of faïence in external as well as internal decoration. The campaniles of Sta. Francesca and Sta. Maria Maggiore, at Rome, are ornamented in this manner, as well as many other buildings in different parts of Italy; amongst them the church of St. Eustorgio, at Milan, which dates from the Lombards, and the Venetian Palace at Rome, built in the 15th century, for Pope Paul II., by Barbo, before he became cardinal, though the frieze which crowns the tower contains his arms as cardinal, painted in blue on large circles of white faïence. The apse of the Cathedral of St. Martin, at Lucca, is ornamented externally with square plaques of very white faïence inserted in white marble, the faïence having rude designs in colours upon it, and taking the place of the coloured porphyry so much in use amongst the architects of that time. The apse was probably finished in the early part of the 12th century, the porch of the building having been completed in 1233. The well-known Church of St. Martin, at Pisa, was erected in the 13th century; the façade, however, was rebuilt in a different style in the 15th century, and the frieze which runs round this, and also the campanile, are enriched by a band of faïence plaques, enamelled in various colours, and in excellent preservation. Another application of this material is found near the church of St. Dominic, at Bologna, where there is a monument of the 11th century, built entirely of enamelled bricks. The art was no doubt brought down to the mediæval architects from the East, and in its Oriental form it was long endeared to the Mahomedans of Europe contemporaneously.

In the East.

Originally, probably, invented by the Egyptians, and adopted by the Assyrians, it would seem to have found a teeming soil for its fructification in Persia, in which country many lovely wall-coverings still remain to attest the skill with which painted faïence was used by the ancient architects. The beautiful painted tiles from Hyderabad, which figure in the present Exhibition amongst the Indian contributions, prove that skill, little inferior to that which covered the most lovely archways and other buildings of Imperial Delhi, still remains at the command of the architect to-day, in

districts famous of old for this class of miscellaneous painting. Very similar wall tilings to the Persian and Indian may yet be found upon the walls of Moorish buildings in Spain; and the manufacture of Azulejos, which the Spaniards and Portuguese learnt from the Moors, is still practised at various points of the Iberian Peninsula, as may be seen in the form of a picture of the Blessed Virgin and two Saints, obtained in Portugal, and lent for exhibition by Mr. George Maw. Surely it cannot but be gratifying to us nationally to be able to recognise that, while in point of beauty of design our ceramic miscellaneous painting stands quite upon a level with that of any other people, ancient or modern, the technical excellence, the exactness, even colour, and prospect of durability and impermeability of our products, fairly place us at the head of contemporary manufacture; and not of contemporary manufacture only, but of every variety of such manufacture as Time, the avenger and destroyer, has left us any trace of. In the East

Having ventured these few observations upon what I cannot but feel to be much the most important form in which miscellaneous painting appears in the present Exhibition, I propose to enter into somewhat closer detail in considering certain minor varieties of miscellaneous painting which have been specially referred to me, *videlicet*:— Miscellaneous painting under consideration.

(*a*) "Miscellaneous painting as applied to furniture."

(*b*) "Miscellaneous painting on porcelain, with a view to its applicability to furniture."

(*c*) "Miscellaneous painting as applied to the decoration of fans."

(*d*) "Miscellaneous painting by means of enamel or vitrified colours on a metal base."

(*a.*) Miscellaneous painting has, in all ages of art-history, been applied to furniture; sometimes in the form of inlays, mosaic, damascening, or marquetry, and at all times in the form of pigment. Painting applied of old to furniture.

The Egyptians, Greeks, Romans, and Byzantines, all painted much of their furniture. Throughout the Middle Ages the practice was adhered to; but in no centuries was it more popular, or carried to greater perfection, than in the 13th and 14th, in which were produced such noteworthy specimens as the "Armoire" in the Sacristy of the Cathedral of Noyon, the grand altar frontal of Westminster Abbey, and the scarcely less remarkable "retable" from Norwich Cathedral, of which so perfect a fac-simile is pre-

Painting applied of old to furniture.

sented to the visitor to the International Exhibition in the Gallery of Reproductions.

This is scarcely the place to enter upon the many interesting technical peculiarities which distinguish these valuable relics of ancient art, especially as they would be most fittingly commented upon in some future year, in which furniture as a class may be comprehended by the art scheme of the annual international exhibitions; suffice it to say, that in all those peculiarities we may find a strict testimony to the fidelity of the revelations of the arcana of the mediæval workshops, which may be found in the record given to us of them by "the Monk Rugerus"—otherwise Theophilus—whose treatise has been so well edited in France by the Count de l'Escalopier, and in England by Mr. Robert Hendrie.

Its revival.

Visitors to the International Exhibition of 1862 will scarcely need to be reminded of the attempts made by Mr. William Burges to revive the manufacture of such painted furniture. Since that date much of that class of goods has been designed by ingenious artists, such as Mr. Talbert, Mr. Moyr Smith, and Mr. C. L. Eastlake; and however little it may have been appreciated by foreigners, in this country, at least, it has met with a fair measure of success.

The contributions of various exhibitions.

In the present Exhibition there is but little of the strict mediæval type, but there are several pretty illustrations of furniture decorated with painting, principally through the medium of coloured faïence plaques inserted as pictures into the sides of chests, sideboards, etc. Amongst such is conspicuous the large wooden coffer, raised on legs—in form something between the "kists" of the old Scotch and English farmers, and the wedding chests of the old Italian families—the principal side of which is enriched by a capital reproduction upon earthenware of the clever "May-day Procession," by Mr. Marks, A.R.A., which was first exhibited some years ago at the Dudley Gallery, and which was purchased from that Exhibition by the Department of Science and Art, as a model suitable to set before students in the school whom tney were then endeavouring to train, so as to rival the satisfactory attempts in the same direction which had been contributed to the last Parisian Exposition, by Yvon, Rosseau, and others.

Mr. Moody, by whom this object was designed, has succeeded in all respects, I think, excepting in the baluster-shaped legs on which the chest is raised. They would be better away, and the chest lowered to the ground. The effect of the combination of the wood and coloured frieze is agreeable. The painting has been very successfully executed by female students.

The contributions of various exhibitors.

By the same hands have been painted, in blue camaieu, the series of elegant and spirited figures of "The Months," designed by Mr. E. J. Poynter, A.R.A., for letting into the wainscoting of the grill-room attached to the refreshment department of the South Kensington Museum.

In other varieties of the application of pictures to the decoration of furniture, are to be admired Messrs. Collinson & Lock's very pretty black-wood cabinet, enriched with figures and ornaments sunk in sotto relievo—*i.e.*, beneath the general surface of the planes in which they occur, as the Egyptians usually recessed their hieroglyphics and pictorial sculpture. The figures and ornaments have been then painted in red and white, and the pseudo-classical look of the whole is fresh and agreeable.

The piano in light wood, stained to a satinwood tint, and covered with ornament boldly designed, and painted in monochrome in little more than outline, by Mr. Gamble, for Mr. Cole, C.B., well illustrates how far the addition of a little art to any amount of utility may be made to at once lift the common-place into a source whence refined pleasure may be derived.

The clever process analogous to that by which this piano has been decorated, is well illustrated by work in the production of which Messrs. Trollope and their talented artist, Mr. Brophy, have concurred.

This process consists in staining light woods with various tints ; the transparency of which, and of the French polishing by which their intensity is heightened, allows the grain of the wood used to show. Thus, without actually simulating or counterfeiting expensive woods, much of the same rich effect in decoration is obtained by the use of light and cheap woods, which could only be gained by great labour and at great cost, if its acquirement should be sought by the use of hard woods, naturally coloured, and combined with marquetry or inlay.

The full capabilities of this process are not exhaustively illustrated by the specimens forwarded for exhibition ; but enough has been shown to prove how much more may, on some other occasion, be expected from the same source.

Mr. Walker's cabinet, made in satinwood ,and painted by Mr. John Turner in quasi-imitation of the style of old English satinwood, which used to be so prettily enriched with paintings after and by Cipriani, Bartolozzi, Angelica Kauffmann, the Mosers, Kirk, Thompson, and others, is very attractive.

It is always pleasant to see that one generation is not forgetful —is, indeed, emulous—of the successes of another, and we may, therefore, hail with satisfaction the success which has attended Mr. Walker's and Mr. Turner's reproduction.

The contributions of various exhibitors.

The most beautiful specimen, however, of pictorial furniture in all the Exhibition is, doubtless, to be found in the Japanese cabinet, decorated with flowers, plants, and birds, all executed in the most brilliant colours, by means of stained grass and straw mosaic. Not only is this object brilliant, but it is also in thorough "keeping," and it has certainly solved the truly difficult problem of how to be gay without being vulgar. The silvery "sheen" of the fibre of the straw makes a charming ground, upon which the lively colours are relieved; and nothing can exceed the taste with which the directions of the fibres, and the overlapping of each little morsel, is made to follow the growth of the leaves and petals, and the overlay of the plumage of the pretty little birds, all instinct with life and flutter.

In this "gay" class of painted ornament, the student will find that he may gain many a lesson from the beautiful patterns he will meet with upon the various articles in papier-maché, decorated by the native artists of Cashmere, and contributed by Lord Mayo (No. 2341, Div. I., Class II.) and by His Highness the Maharajah (No. 2343).

Amongst the satisfactory preparations for pictorial-furniture decorations, should be noticed some prettily coloured tempera panels by Mr. J. H. Pollen (No. 2307), and some little religious subjects, for the most part after early Florentine masters, and on gold grounds, by Mr. R. H. Prance.

Paintings prepared for industrial uses.

(*b.*) Miscellaneous painting on porcelain, with a view to its applicability to furniture.—There is probably no kind of old furniture which ever attains so high a price in public sale rooms as that remarkable kind, of which but little was produced—the small cabinets, "bonheurs du jour," etc.—manufactured by Reisner and enriched by Gouthiere's chased brass work, and painted plaques of "pâte tendre" Sèvres china.

What gives exceptional value to this class of furniture, is not only its rarity but its elegance. Its great money value has, naturally, led to its frequent imitation, but, I am sorry to say, the success is not commensurate with the frequency of the imitation. Such delicate work requires the utmost exactness and perfection of finish; and unless the whole of the object is of equal excellence, it sinks generally to the level of the least well-executed portion. Hence, the china plaque to be mounted must be no less perfect than the framing in which it is set, and *vice versâ*.

China plaques.

Of china plaques, suitable for such mounting, the Exhibition contains so large a number that I can mention but few, preferring rather to speak briefly of the most successful artists by whom they have been painted than to dwell upon the specific plaques themselves.

Amongst such, Mr. George Gray with his capital "Maid and the Magpie" (No. 2997); Mr. John Simpson with his "Village Choir," etc., (No. 2313); Mr. F. Lapf, of Bamberg, Bavaria, with his noble figure of "Judith with the Head of Holofernes," after Riedel (No. 2311); Mr. W. S. Coleman, with his crowd of pretty fancies for Minton; M. Emile Lessore, with his admirable groups of children, and studies from nature and the old masters, are one and all in their respective lines to be placed upon a general level of great excellence. China plaques

The extraordinary facility of the last-named artist is greatly to be admired, but, at the same time, it is a little to be regretted that his scale of colour fails rarely to overcome the somewhat monotonous brown scale of chiaro-oscuro, in which he works too uniformly. Where he is studying from nature, as in his very fine large subject of "Children Nutting," he is more excellent than in his more conventional works, such as his "Nymph with Amorini," next to it.

Before leaving this branch of my subject I desire to note my great admiration for Mr. Powell's fine figure of Christ, in white drapery, painted on opaque glass, in a simple and really religious manner. It is well adapted for insertion into a splendid reredos. Mr. G. E. Cooke's stove tiles are elegantly designed for their purpose, as are all those contributed by Minton, Maw, and Simpson.

(*c.*) Miscellaneous painting, as applied to the decoration of fans. —Until a comparatively recent date the world has looked almost exclusively to Paris as the source from which anything like a really artistic fan could be obtained. As was clearly shown by the recent interesting exhibition in the galleries of the South Kensington Museum of fans of all ages and countries, this has only been the rule within the present century. Up to the close of the last century, Italy, Spain, and England maintained a lively competition with France; and, although the palm for absolute excellence could not in justice be withheld from her, even at that date, many English painters, carvers, and designers combined to produce very pleasing specimens of that art which it is now sought to revive. Although these are not the days in which, as towards the close of the last century, foplings, or, as the poet styles them, "manlings," thought it, Fan mounts.

> ". . . . . meaner to command
> A conquering host, or save a sinking land,
> Than furl fair Flavia's fan, or lead a dance;
> Or broach new-minted fashions fresh from France"—

still, we may rejoice at the chance of even our "toys and gauds" being made elegant; and since we must have "new-minted

fashions," they may as well be of home growth as be brought to us always "fresh from France." One aspect under which the prospect of the revival of the old English fan-trade is especially interesting, is the chance it affords of increasing the too limited directions in which it is possible to employ the almost superabundant ingenuity and dexterity of educated women.

The fan competition.

Those who have had this especially at heart have inaugurated the competition; the results of which are now submitted to the visitor to the International Exhibition, limiting the struggle for the prizes offered to ladies only.

Her Most Gracious Majesty was pleased to offer the chief prize, which, unfortunately, has not been awarded. It is to be hoped that this withholding of prizes offered will not throw doubt, in the minds of competitors, upon the *bonâ fides* of the competition, or cast an unmerited slur upon the general character of the exertions of those who have answered, with zeal and spirit, to the appeal made to them.

Prize fans of the Exhibition.

The highest merits are unquestionably exhibited by, and the highest prizes have been awarded to, three members of one family, the Misses Montalba. Miss Henrietta Montalba carries off the first prize given (£15) for her "Shooting the Popinjay" (No. 2445), and one of £10 for her "A Banquet" (No. 2446), which appeared to me to be the cleverer of the two, since the double level of the two sets of chambers—the banquet hall above and the kitchens and cellars below—was made to lend itself very ingeniously to the exigencies of the peculiar shape of picture demanded by the form of the fan mount.

Miss Hilda Montalba gains £10 for her "Water Party" (2448) and for her "Les Graces" (2447), both composed with facility and painted with spirit, but not evidencing any special adaptation of the picture to the subject. Miss Ellen Montalba has not been as fortunate as her sisters; her fan mount "Oracles" (2449) having only won, as it were, a friendly nod from the Department of Science and Art, in the shape of a £3 prize given by the Department. Her fate seems to me a little hard, for not only does her design recognise the peculiar radial character of the fan, but the details, heads, hands, expressions, and ornaments of her mount are touched with more tender feeling and delicacy than corresponding parts in fans which have been much more highly rewarded. In fact, I look upon Miss Ellen Montalba's fan as the best amongst all those exhibited. It wants only a fuller tone of colour to be eminently successful. Next to Miss Ellen Montalba's fan-mount in quality of work, though somewhat wanting in originality, appear

to me the fine fans (2433 and 2434) painted by Madlles. Ledoux and Lemann, and contributed by Madlle. Rebours. **Prize fans of the Exhibition.**

The second or third place has been assigned by the Judges to Her Royal Highness the Princess Louise, whose fan mount, "A Skating Scene," has a fair title to the position assigned to it; taking into account the spirit of the scene, its good tone of colour, the natural, lively action of its figures, and its considerable artistic merits. It may be, however, that Her Royal Highness, in making so good a picture, has slightly overlooked the particular conditions which best qualify a picture for forming a fan mount; and there is some little evidence of this in the fact that she has placed a clever head of Winter exactly where the sticks of the fan would converge, and where, in execution or making up, such a feature could not be satisfactorily placed.

Miss Linnie Watt gets a prize of £5 for a pretty design (No. 2469), of "Lovers Attended by Cupids." It is painted on silk with considerable dexterity, and is pretty, with little originality or special character.

Amongst the cleverest of the unrewarded must be noted Miss Mona Waldie Griffith's "Egypt and the Egyptians," representing with spirit and quaintness, and a good sense of ornamental arrangement, the investiture of a chief fan-bearer. **Good fans produced by unsuccessful competitors.**

This good feeling for ornamental arrangement is shown by a few ladies whose want of power as artists has prevented their doing their clever designs full justice. In this class must be placed Miss Maria Eassie (No. 2415), Miss Evelyn Leslie (No. 2435), Miss Sarah Prince (No. 2454), whose notion of uniting the sticks with the growth of the fern leaves which decorate the mount, is very pretty; and Miss Emily Stanton (No. 2462), who has charmingly adapted to a fan mount the well-known style of a Danish vase painter, whose touch for small wild flowers has had a considerable success in this country.

Miss Julia Cowper's "Spring" (No. 2411), on blue silk, is agreeable, and would make up into a pretty fan.

I may, perhaps, do well to close my notice of the fans with a word or two of praise for Miss C. F. Frere's (Nos. 2421 and 2422), These show much readiness both of fancy and hand, and seem to want only a little more deliberation in perfecting clever thoughts to have attained a fair measure of excellence.

Generally it may be remarked in these designs that the particular ornamental character of the fan has been somewhat overlooked. It is not every good water-colour drawing that will make up into a good fan. Attention should be paid to such compositions, ornamental or pictorial, as will look well when the fan is only partially opened.

Attention should be paid to the "framing in" of the subject, so as to connect it well with the sticks; and, above all, the fan should be made gay and pleasing in colour as well as in subject. To be ornamental is its first and essential function; and stiffness, coldness, or the appearance of too great formality or labour, are so many drawbacks to its completeness, as a "weapon of offence" in the hands of "armed science."

Enamelling.

(*d.*) Miscellaneous painting by means of enamel, or vitrified colours, on a metal base.—I do not propose to make any remarks upon the general subject of enamelling, as they may be well reserved for some future year when enamel may be a legitimate theme to dwell upon. The Exhibition, however, contains two or three specimens of enamelling of such singularity and beauty that they cannot be passed over "sub silentio."

Special contributions from India.

Nos. 2337 and 2338, contributed respectively by Lord and Lady Mayo, from Jeypore.—The first of these consists of a cup, saucer, and spoon, made in fine gold and designed in most elegant forms. Each of these forms is heightened and defined by enrichment made by incisions into the metal in beautiful conventional ornament, subsequently filled in with transparent and opaque enamel pastes, but principally the former.

The dominant parts and mouldings are heightened yet further by setting in diamonds in various ornamental forms. The result is a specimen of goldsmiths' work as lovely (although, of course, in a very different style) as anything Cellini or Caradosso ever did. As Dr. Forbes Watson tells us:—"The finest enamelled work of India is produced in Jeypore, and is considered as of great artistic merit. The enamel is very superior, and is only applied to gold and silver. The exact process is kept secret by the artisans, who retain it as an heirloom. All articles manufactured by them become the property of the State, which pays liberally for them."

Lady Mayo's contribution is in nowise less beautiful than her husband's. It consists of a golden vase of the well-known shape, composed of a globular cavity, which holds a considerable quantity of fluid, having an inverted truncated cone inserted, as it were, into it by its smaller end. On suddenly inverting the bottle, the narrow aperture of the cone, where it connects with the globular part of the bottle, causes a regurgitation, and allows, for a second or two, a few drops at a time only to pass out of the neck of the bottle. It is thus well adapted for holding and scattering the perfumes so much used in the zenanas of the East. The beauty of this particular bottle is very great; and it is gratifying to note the wholesome example of conservatism set us by the Rajah of Jeypore, in these days in which

we cannot but be made conscious of the change which is creeping over so many of the traditional arts and handicrafts of India—days in which economy seems to be rapidly usurping the high place formerly accorded to beauty in technical production. Special contributions from India.

In addition to these exquisite specimens of oriental skill in enamelling, India contributes various interesting examples of her current production. The usual blue and green enamel of the Punjab is well represented by a cup from Kangru. Hyderabad and Delhi vindicate their old fame by elegant enamelled jewellery and other objects.

The greatest effort of all has, however, been made by the Maharajah of Cashmere, who has sent his own portrait, painted on gold in enamel, and surrounded by a frame, also of gold, covered with most beautiful ornamentation, flowers, etc., delicately painted on enamel after the Persian manner. It is said that Cashmere has long served as a great field for artists emigrating from Persia, and a careful comparison of Persian with Cashmerian products leads one instinctively to the impression that Cashmere must certainly owe much of her delicate perception of the beauty of colour and floral form to her proximity to, and intercourse with, the time-honoured land of the Sun.

It is to be hoped that we may see much more of this beautiful variety of Persian enamelling in future Exhibitions.

REPORT

ON

MOSAIC AND GLASS PAINTING

In the International Exhibition of 1871.

By T. GAMBIER PARRY, Esq.

MOSAIC.

England is especially the country for mosaic. We need its durability and its lustre. Where other systems of Art would only make darkness darker, lustrous mosaic multiplies upon its thousand surfaces every gleam of light, and reflects the very reflections of itself. It might seem at first a mere thing of ingenuity. It needs indeed both ingenuity and skill; but beside them it needs for its perfection a fine tact and a bold discretion which can only come of artistic talent and education. The trained care of a neat-handed artizan may suffice for its simple decorative work. But high art needs high training. The use of the art.

In mosaic applied to the higher branches of art, a thorough knowledge of the principles of design and chiaro-scuro, especially in the action of the human figure, is indispensable; for as the intricacies of painting are impossible in mosaic, and indeed ought to be so, to insure the effect of power and breadth, which are the finest characteristics of mosaic, the artist needs a true sense and an accurate knowledge for that *scientific selection* of parts (whether for their omission or emphasis), which would be out of the question to the blundering guess-work of one not trained by an artistic education.

The history of art is written in mosaic. In the relics of Egypt, Assyria, in those of Greece, when Byzantium had taken the place of Athens, and of Rome, when Christianity had revived her arts afresh, over the world, from India to England, and under all the vicissitudes of national prosperity and decline, mosaic has pre-

The use of the art.

served the record of styles of art and of the influences of national character and religion upon it, from the earliest historic days till now. If this art is to revive and flourish as in other days, its hope is in the devotion of its students. The English student is already well provided with the sources of information. The works of one gentleman alone, Sir Digby Wyatt, on this and its kindred subjects, supply all that a student could hope to learn from books in the history of the art, the detail of its materials and handicraft, with admirable instruction on its principles and application, and references to important foreign works and illustrations of the art. The lecture by the Right Hon. A. H. Layard, printed among the papers of the Royal Institute of British Architects, for November, 1868, and that by Sir D. Wyatt in the same series, for 1862, are valuable both for the archæology and practical information they contain. These two papers reprinted together would be of great value for circulation among art students.

The ancient wall-mosaics were composed almost exclusively of vitreous tesseræ. The pavements were of every variety of material and colour. Pavement-mosaics were principally of stone, terra cotta, or marble. In the 1st chapter of the Book of Esther the pavement in "Shushan the Palace" is described as of "red and blue, and white and black marble," a sort of intarsiatura mosaic.

The ancient earthenware tesseræ had not the durability of glass; but the novel process by which the ceramic tesseræ are made by a crushing pressure upon dry pounded clay, affords all prospect of durability otherwise unattainable by terra-cotta. The Romans, in England, commonly used the local materials for their mosaic floors —blue lias, grey forest stone, yellow oolite, brick burnt red or black, or any other material at hand. Accumulated rubbish has preserved what time would otherwise have ruined of such perishable materials.

Mosaic was but little used in our national Christian architecture. Buildings of the same style in Italy abound in mosaic; and those of the East, and others in Christian countries erected under Saracenic influence, have their interiors clothed with it. Nothing can surpass the richness of its beauty. Its resources are unbounded, from the solemnity of its works at Ravenna and Venice, in Salonica and Sicily, to the gorgeous dome of the more modern St. Peter's at Rome, and the minute brilliancy of its copied pictures.

The place of mosaic among the arts.

Mosaic is to painting what painting is to nature; not its copy but its sense. In former days such men as Andrea Tafi and the artists of S. Apollinare and S^{a}. Prassede, designed their cartoons and worked their mosaic upon them. But those were days when time was of small value. Now-a-days the artist who designs would grudge

the time spent in the arrangement of his tesseræ. The work of the mosaicist is, therefore, a speciality, and is more than half an architectural one. His palette of colours, like that of the buon-fresco painter, is limited; it ought to be so, and severely so. Let him restrain his hand from liberty, and heartily accept these limitations, for they insure a breadth and grandeur to his work which the resources of facility and delicacy would risk. The place of mosaic among the arts.

A mosaic is a translation; but to be a perfect one, it needs to be made with so fine a sense of the genius of the two languages that a native on each side would recognise it as his own.

Colouring, taken as a monumental art, must consent to dispense with many qualities of a picture. Their loss may be painful in an isolated work, but in monumental art nothing is isolated. Painting need lose thereby neither refinement nor vigour. If obtrusiveness is a vulgarity in men, it is infinitely more objectionable in art. Self-restraint in art need deprive it of no power. Its evidence would rather add to its power. Art might thus indeed be thrown back upon itself, and rest upon its own fundamental resources. But if it were so, its very independence would give it dignity; and, being master of itself, it would become thereby master of the spectator. Principles of monumental art.

A picture, speaking broadly, can have but one point of sight. A building has none. The spectator makes one for himself whichever way he turns. The variety and charm of architectural effect is due to this, so that all is symmetry, all is true, whichever way the eye may be directed. Why, then, make discord by inventing other points of sight which the architecture ignores? The painter, or the designer for mosaics, does so, who, in his limited view of art, designs and paints for architecture as he would for his gallery. If, on the contrary, the principles of monumental design were studied and realised—if artists, even Royal Academicians, would condescend to learn the grammar of another important language—the language of *combination*—art would then rise to that high standard which unity can alone attain. It would command again, as it did of yore, the respect of the very multitude; it would make them think where thought had no place before; it would gain first their assent, at last their affection, and make a people honourably proud in the possession and the power of national genius.

If monumental art is to be again, it must be by the courage and the power of such principles as these. None other can realise it. Monumental art is at once a multitude. Mosaic is but one of its many instruments. The designer for mosaic must, at least in knowledge, be a mosaicist himself, and as much an architect at heart as a painter. Orcagna, Ghiberti, and Cellini produced works most

Principles of monumental art

beautiful and complete, because they grasped at once the purpose of their thought, and the powers, the limits, and the application of their materials. For want of such comprehensive grasp as this, our modern works too often fail. That noble inspiration which once animated the arts is needed now to teach them to combine, and both to give and gain by combination. The beauty of a crown would be marred if one gem paled the rest.

For all minor purposes of decorative painting men may do what they please. When they are bound by no architectural obligation they are free; and in a room, whether it be of the size of a boudoir, where Bouchet or Watteau may have let their fancies loose, or of the size of the chambers in the Vatican where Raffaelle painted his School of Athens, the rule of the artist must be his own discretion. Where on the contrary, he has to deal with great architectural features and effects, let him remember that incongruity is discord; and that where the architecture has demanded breadth and massiveness, his work is grievous if he ignores them.

Artists should be half mechanics. They think now too little of construction. They are apt to think that mechanism and construction are things of prose, and that art aspires alone to the realm of poetry. We can only hope for a future of better things and better understandings. Unless a designer of monumental art can conceive and master, in one mental grasp, the poetry of construction and the construction of poetry, he had better leave that noble art alone.

Orchestral harmony owes its charm to the many voices of its instruments. It is not enough that they be tuned together or maintain their parts; but it is that each one singing out its own poetry, in its own sphere, in its own voice—discreet, unselfish—combines to make sound perfect.

Thus, too, there is a harmony, pure, complete, and true, as much needed by the eye as by the ear. The cautious discipline of the orchestra is no less needed for its perfection than it is by those many-voiced instruments of art which make the music—silent though it be, and all the more sublime—of monumental architecture.

Notice of special systems and works.

The system of mosaic painting invented by Mr. Minton Campbell is the most remarkable novelty in the fine arts department of the Exhibition. The sensation caused by the German invention of water-glass was very great, but the success is doubtful. The three most important works executed in England have been intrusted to this precarious system. Two of these works, the greatest in size and the most successful in execution of modern works of historical wall-painting, Mr. Maclise's Waterloo and Trafalgar, have been finished but a few years, and are already exhibiting the

signs of decay. The third, by Mr. Herbert, may last much longer, because of the extreme caution with which he used water-glass. May it last for ever! But what is water-glass? It is the delicate film which shines on the golden surface of our autumn straws of corn. It serves, by the exquisite provision of nature, to preserve the slender stalk—but how long? Till the time of wintry trial comes; and then water-glass and straw are gone together. It is too delicate, too superficial. Notice of special systems and works.

Mr. Minton Campbell's system is an application of mosaic tesseræ to ordinary painting. It is not mosaic; but it combines the mechanism and durability of mosaic with the freedom of oil-painting. A surface of mosaic tesseræ of any extent may be painted as a man would paint canvas. The surface thus painted may be broken up into groups of tesseræ; and painting, which, though treated like oil, is in fact vitreous, may be burnt in by the furnace. Thus, like mosaic, it becomes, as far as mortal man dares to use the word, imperishable. It may be altered; any number of "pentimenti" may be possible, and the work may be burnt in again and again without injury to the rest. Thus wall-painting is secured by imperishable enamel. Never were two systems more opposed than this and water-glass. The one was "unstable as water," but this is fire-glass.

The palette of the buon-fresco painter was limited to the colours that would bear the ordeal of quick-lime, and they were few. His very difficulties brought out his power. His colours were few, his lime was rapid, breadth and simplicity were his necessity, and their result success. But this new process breaks down all limitations both of colours and their use.

Regarded in relation to the higher view and purpose of a painter's work, as a method which is to supplant fresco, and to take the place of mosaic, the future which Mr. Minton Campbell's system opens to the art-world will be the making or the marring of art, according to the self-restraint or easy license of those who use it. Without discipline and self-restraint, all dignity, order, beauty, health, are gone, whether it be in politics, religion, morality, or art.

The system of Mr. Minton Campbell's fictile painting is well illustrated by the figure of Ghiberti, by Mr. Fisk, and a group of a Hunter, his Hawk, and his Dog, by Mr. Marks, in a room of the Western Fine Art Gallery.

The use of true mosaic is well shown in the admirable execution of Mr. Leighton's figure of Cimabue, by Miss Cole. As a piece of true architectural work, which mosaic must ever be, it is infinitely superior to the free painter's work in the figure of Ghiberti, executed in Mr. Minton Campbell's process. They are both on a flat gold

Notice of special systems and works.

ground. The mosaic treatment of breadth, and extreme simplicity of shadow, in the figure of Cimabue, unite in perfect architectural keeping with the gold background. Mr. Fisk's figure, excellent as a piece of free picture-painting, does not suit its place at all; it looks like a piece of canvas cut out and laid on a gold ground, incongruous and unexplained. In this result lies the danger of perfect freedom in wall painting, to which the buon-fresco painter and the mosaicist were not exposed. Free work is liable to want that dignity which is indispensable to the associations of monumental art.

Mr. Salviati's works, in the same room, exhibit, by their simplicity and breadth, the true decorative art of mosaic in connection with architecture. They are in colour also mellow, rich, and grave; as such a purpose demands.

There are several works in mosaic, such as the figure of Gibbons, in this room, which exhibit the very disagreeable result of the tesseræ obtruding themselves on the sight. The beauty of mosaic is in its result—its ugliness is in its construction. This should never be too clearly visible in representative subjects. By its character of powerful and simple breadth, let a work be known at once to be mosaic, no matter where it be, high or low, dark or light; but be careful not to agonize the eyes by forcing upon them the grating surface of obtrusive tesselation. It is hardly necessary to add that such caution is not intended to apply to ordinary decorative work of geometrical designs, such as those of pavements, panels, and so forth. In higher works of art the eye should not be distracted by the mechanism of the work.

In the Pottery Gallery (in the East wing) are some remarkable specimens from the works of Messrs. Simpson & Co. They exhibit all styles of work, from the vigorous pictorial head of Inigo Jones to the broad and simple uses of mosaics, where good effect at small cost is a matter of necessity. Their application of flat decorative work to tiles is as good as their mosaic. The employment of tiles for figure painting is well worthy of notice in the figure of St. Luke. Other methods by other persons, of using tiles for figure subjects, may be examined at the end of the Ceramic Gallery of the South Kensington Museum.

The student is further referred to the specimens of enamel colours, "smalti," exhibited from the Imperial Academy of Fine Art at St. Petersburg, and from our English mosaicists, Messrs. Maw and Messrs. Rust.

In connection with this subject must be mentioned the use of coloured opaque glass inlaid upon walls by Messrs. Powell of Whitefriars.

Let no one, however, suppose that these enduring materials of

tiles and mosaic will stand against the effect of damp inside walls. The damp must come out; and with the irresistible power of its invisible steam, will blow up any mosaic, and smash the incrusted tiles and glass, just as the tender roots of ivy or still more tender fungus will break to pieces the stoutest masonry.

GLASS PAINTING.

The uses and principles of the art.

This art is more nearly allied to mosaic than any other. The principles on which they rest are the same. The golden rule of them both is that all design must have respect to materials and to the place which the finished work will occupy. The revival of the art in this country has been due to those influences which have made this a great church-building age. This art has suffered from being treated as an easy one; and artists of small attainment, and without any approach to scientific knowledge of colour or of drawing, have trusted to the beauty of their materials to let their own shortcomings pass unobserved. It is only to be explained by public inaptitude, that after so many years of experience in the revival of this art, systems of work should be patronised at great cost which do violence to the first principles of art itself. Not only is the beauty of the material degraded to the effect of semi-transparent tracing canvas, oiled paper, or parchment—nor is it merely that archæological taste is violated by the confounding of styles; but, worse than all, this art seems to be taken as a fair field for pretension to the highest flights of genius by the most daring compositions, when, all the while, every feature of drawing and every point of composition only exhibit the painter's reprehensible self-confidence. We do not look for refinements of anatomical drawing in the designs of old windows, nor do we demand them of our modern glass painters; but what we do demand is, that they shall give us glass windows, and not mawkish transparencies, where all the vigour and glory of their material is blotted out, and all the glancing and exhilarating effect which should be its object and its pride is toned down to one dead level of soft and sentimental insipidity.

It might be invidious to particularise, but the student and cultivated visitor will judge for themselves, and be led to hope for the time when public taste will be better trained to allow such works no more. They are the more reprehensible, because now the materials of glass are so well understood by the manufacturer, and

The uses and principles of the art.

those qualities of translucent radiance and refraction to which the old glass owes much of its charm, are completely reproduced, and within the reach of all. By this no extreme criticism is intended, as though it were to insist on the use of glass bare and nude of all the toning of metallic oxide; what is regretted is the want of discretion and judgment in its use. In the fine specimens of that late quasi-pictorial work in the chapel of King's College, Cambridge, and in Fairford Church, there is plenty of toning enamel; but, at the same time, the openings of clear glass are in such plenty also, that, arranged with all the cunning of true art, the mellow parts are all the more mellow, and the glowing effect of clear and gorgeous colour all the more superb. The eye is filled and not fatigued.

With foreign glass-painters the habit of blinding their glass, or coating it with a fog, is excessive. They appear to ignore the glories of old art, and to aim at a sort of opalesque tranquillity of effect by uniform smoothness of surface best suited for the exhibition of their picture-like transparencies. The fault of the system is that it turns windows into mere picture-frames, and perverts an architectural opportunity to the service of a subsidiary art. The duty of a glass-painter is precisely the reverse of this; and, happily, there are professors of this beautiful art, both foreign and English, who follow the grand old traditions with the utmost success. This Exhibition does not at all fully illustrate the present condition of the art, for some of its leading artists have sent nothing. The galleries of general exhibitions are bad places for glass paintings. Everything depends on the works being properly placed. The range of their character and use is as wide now as it was formerly between the little crisp panes of a 15th century Nuremberg house, with the quaint sharp designs of its refractive grisaille, and those broad and grandly sober sheets of glass which fill with stately figures of old saints the lofty clerestories of Bourges. But in exhibition-buildings designed for other things these exigencies of the art are left to the visitor's imagination. So no wonder that glass-painters are shy of exhibitions.

For domestic purposes, where a soft enamelled window may be needed against the glare of sun, or some ornamental glass required to screen unsightly things outside, or for halls and passages and what not, a painter's whim may range as he pleases; but when we approach to monumental art, then there is but one standared for the glass-painter and his critics. He works side by side with the mosaicist, the sculptor, the wall painter, the workmen in marbles, woods, and metals, and pre-eminently with the architect himself, to produce a great result, the excellence of which depends upon its unity. If a work individualises itself the unity is broken. If

The uses and principles of the art.

one art so loses its own dignity as to quit its own sphere in the ambitious rivalry with another, as the glass-painter does who leaves his glorious endowments of light and colour to mimic (and that in vain) the subdued beauties and the scientific composition of the art of picture, then again the links of monumental unity are broken.

By such considerations as these it may be judged how pre-eminently difficult the arts of the mosaicist and the glass-painter really are. They are possessed of such transcendent powers that in their use the highest education and finest judgment are needed.

Of the countless purposes to which these two arts may be applied we need say no more than, with this caution, that they are arts and not manufactures. Their patrons need as much education as their professors. When applied to ever so great a purpose each art must be great enough to hold its own. When applied on ever so small a scale or to ever so subordinate a purpose, pure art is always a joy; but bad style, bad drawing, incongruity, ignorance, sensuality, vulgarity, selfishness, and conceit, are always and everywhere insufferable.

The purest ambition of an artist is to instruct his fellow-men, to direct their sympathies, and to raise their idea to that standard of excellence which his own life of labour and devotion has ever striven to attain. In nothing is it more true than in art that "pride cometh before a fall." The truest artist will ever live in humility and hope, and will die with his alphabet upon his lips.

Notice of special works.

The best foreign work in this collection is No. 2403, by Von Swertskoff, in the Pottery Gallery. Its bold design is admirable for its purpose, which, instead of filling a window in a small room, and close to the eye, is rather that of giving splendour to a distant architectural effect. If the artist had used the coarse refractive glass, such as the gorgeous windows of mediæval and renaissant art would have had, his painting would have gained immensely in force and richness; and, if he had been content to leave, here and there, more of *such* glass, free from the enamel which smooth and miscalled "good" glass, from its poverty and weakness, needs for its support, his effect would have been perfect.

In entire contrast to this are Messrs. Heaton & Co.'s refined illustrations of "Elaine," in the Meyrick Gallery. With domestic glass, which this is, anything is allowable within the range of good taste. Designs of this character and refinement will only bear to be alone. Their extreme tendernes is marred by their incongruous position in Gothic windows filled with crisp and vigorous grisaille, relieved with points and lines of powerful colour.

Notice of special works.

Messrs. Ward & Hughes's windows are always rich in colour. Their illustration of a subject from the Book of Revelation is a good specimen of their peculiar treatment of gorgeous colour massed together; one only longs for a little more of it to be free from the woolly stippling. Their little double window, with the women and angels at our Lord's sepulchre, is a very refined specimen of their style. Their group of "Industry" is gracefully designed and richly coloured. If this subject, and those of Messrs. Heaton & Co. could change places, each would benefit. Messrs. Hughes's subject overpowers the delicacy of its grisaille ground;—Messrs. Heaton's vigorous ground overpowers the delicacy of their subject.

No. 2376 (south-east staircase), central window, by Messrs. Gibbs, is an effect of painting in elaborately stippled and softened enamel.

Nos. 2394 and 2395 (Meyrick Gallery, Belgian windows), by Mr. Vander-Poorten, are specimens of the style of work referred to in the introductory notice above. They have not a single character of glass left, except that its pieces are jointed with lead. Its effect is thoroughly realised for what it is intended to be, viz., that of a transparent blind. I leave these and all similar works to the discriminating student, who can recognise the broad rule, that works of art are good or bad as they are conceived in relation to their materials.

No. 2375 (north-east staircase), by Mr. Dobbelaere, is worthy of special notice as a specimen of dead colour enamelled figures on a rich and clear but deeply-coloured ground.

Messrs. Lavers & Co.'s specimens of renaissance glass deserve special notice. Their central window in the north-west staircase is a rich and beautiful work—a picture in an architectural framework. Taken alone upon its own peculiar conditions it is a success. A similar style of window, by the same hands, but not quite so complete, is in the Meyrick Gallery.

Messrs. Mayer's works, in the Meyrick Gallery, are the usual specimens of Munich glass, with all their specialities of artificial enamelling. Such is the window of "Hamlet." In the window of the "Adoration of the Magi" is a specimen of the Munich style of glass with a more architectural intention. It has, as usual in works of this school, that harshness and almost savageness of effect in its chiaro-oscuro and its colours, which fatigue the eye by their violence and unbalanced intensity. The special characteristics of English and German Gothic are so distinct that the ornamental accessories of the one are rarely harmonious with the framework of the other.

Notice of special works.

No. 2402. Meyrick Gallery. A series of panes of corrugated glass, with subjects in outline. They are to illustrate the use of glass in galleries and rooms where the desideratum is to hide some unsightly objects outside. When such is the case it is necessary that the designs, which must be incessantly thrust upon the eye, should be as good as possible.

The application of photography to window ornament is illustrated by Col. Stuart-Wortley's fine photographs in the conservatory, and by those of M. Joubert, both plain and coloured, in the South Kensington Museum collection.

REPORT ON SCULPTURE, &c.,

In the International Exhibition of 1871.

By RICHARD WESTMACOTT, Esq., R.A., F.R.S.

Purpose of this Report.

In the following Report on the works of sculpture contributed to the International Exhibition, critical questions to which the subject, if viewed only in relation to the condition and progress of Fine Art generally, might at first seem to lead, will occupy comparatively minor consideration. The main purpose will be to direct attention to such examples as may assist the visitor to acquire, in the first place, a fair knowledge of the existing state of the art in those countries where sculpture is practised, and of which specimens have been sent for exhibition; and, next, to show the influence they are capable of exercising on industrial progress, in the application of sculpture to designs of less ambitious character than ideal statues and similar productions.

In discussing art, consideration must be given to the conditions under which it is produced. Some works may be the outpourings of a real love of art for its own sake; and these, of course, claim the first rank, as the expression of the mind, the feeling, the intelligence, and the sense of beauty of their authors; others are prepared to suit the prevailing fancy or fashion, whatever that may be, of the time; or to meet a mere trade-demand, according to the value certain popular kinds of art may have in the market. The taste may be good or it may be bad; but even here there may be sufficient opportunity for offering useful remarks on their leaning to, or divergence from, a good standard; and especially for noticing the more material points of technical execution and treatment of surface; matters of no trifling importance, though they may be inferior or subordinate to the more refined question of taste in the selection of forms and the choice of subjects. Others, again, are produced simply as decorative and ornamental design; either in human and

animal forms, or foliage, or even grotesque combination of these; but in which, while the object is to produce variety and picturesqueness, there is always room for the display of good taste, in the appropriate character of the ornament, and in insuring its harmony and consistency with the general design and surroundings with which it is associated.

Sculpture as applied to decoration.

It would be a great mistake if those who consider themselves sculptors of a superior class, simply because they do not profess or undertake the inferior practice of ornamentists, should suppose that by connecting their more ambitious studies with industrial products any degradation of high or fine art is implied, or other than a just appreciation of its prior claim to consideration intended. Far from it. It is evidence rather of the importance and value attached to the practice of the higher forms of sculpture, and their influence in giving a superior impulse to all collateral art. It might easily be shown from history and proved by existing works that the quality and character of industrial art, using this expression in its largest sense, have always been influenced by the state of art in its higher branches. In Greece, at its best period of sculpture, the taste and style of small and useful works, as vases, pateræ, architectural details, the ornamentation of arms, and of the commonest vessels followed, both in shape and in the character of their decoration, the noble lead in the direction of the beautiful which the greater and grander works of Phidias, Praxiteles, Polycletus and others showed was the paramount motive of their practice. The same is seen in the productions of the best period of art in Italy, when such men as Benvenuto Cellini and other artists of eminence—whose superiority in this especial excellence still challenges the rivalry of modern times—dignified the callings of the goldsmith, the jeweller and dealer in precious stones, the armourer, the maker of furniture, by the beautiful artistic accessories their skill supplied; conferring thus a value on objects of common use which, but for the addition of this skilful labour, would have had but ordinary interest. Not a few of our own distinguished artists (as Flaxman, Theed, and Bailey) have lent themselves to this useful work, and, as the history of fictile art especially testifies, effected by so doing the most satisfactory revolution in taste by the introduction of beautiful general forms, and, where opportunity allowed of it, of a graceful character of ornament, in the place of the coarseness and common-place which had previously been seen in such articles of manufacture. Surely there cannot be a more praiseworthy application of an artist's talents than this of labouring in the improvement—nay, it may be said, the creation—of public taste; or a greater mistake committed than to

suppose that ordinary workmen, uninstructed in the first principles of design, are competent to invent and carry out details which demand for their successful treatment the resources of a cultivated taste, supplemented by a competent knowledge of all classes of form, and the power of facile execution in expressing or illustrating the subject of the work, whatever that may be.

Sculpture to be considered an art of form only.

In reviewing the sculpture in this Exhibition, the art will be considered exclusively as one limited to *form*. Where effects are sought to be produced by extra and artificial accessories, as colour of any kind, or even by variety of materials, the works so treated will come into a different category from that of pure sculpture. They then more properly fall into the class of decorative art.

It may be as well to state, in a few words, the principle on which such distinction or classification is based. There are two propositions or conditions which should be carefully borne in mind when estimating Fine-Art Sculpture. The first is, that its functions is to represent by *form;* and, secondly, that the forms chosen should be the best that can be found in the great school of Nature—Nature, that is, in her normal beauty and perfection; not as she is often and, indeed, generally seen after the wear and tear of life, in what may be considered accidental deterioration or deviation from the first pure and perfect rule and type of creation.

It is reasonable to refer to this perfection as the standard by which all works in sculpture should be judged; and that the standard is a trustworthy one will be admitted from the fact that the greatest masters of sculpture, at the period of its highest excellence, made this the rule of their practice, as is seen in the numerous works that have reached modern times. In so doing, they have perpetuated the noblest classes of form found in nature, and have thus left to succeeding ages the truest *canon* or law for the guidance of artists and lovers of art in their study of this important and fundamental principle: fundamental because without a competent knowledge of the highest class of form the sculptor must never expect to attain to eminence in his art.

The greater number of works in the Exhibition, in the various classes of sculpture proper, are contributed by artists of Great Britain. The next in number are by Italian and Belgian sculptors. It is a subject of great regret, especially considering the known ability of many of their artists, that but few specimens have reached the Exhibition from France.*

In the survey of the works submitted for public examination,

* This Report was in print some time before the opening of the French Annexe.

Sculpture to be considered an art of form only.

some discretion will have to be exercised in the reference made to particular specimens. Some, even of merit, may be omitted if they are not of a character to illustrate, in any useful or striking way, any leading truths in art. It is for this reason that portrait-statues, busts, and medallions must for the most part meet with scant notice in this survey; for, however deservedly works of this class may claim attention, and even high praise when they exhibit striking character, truth to nature, and careful and refined execution, yet the very conditions which give them contemporary value or favour, namely, distinct individuality which can only be secured by copying particular and exceptional forms (often not of any remarkable beauty), and the close imitation advocated and practised by some sculptors of the details of modern dress (at this time of peculiar ugliness and unfitness for sculpture), must, as a rule, exclude them from commendation where the best examples are to be pointed out as guides to improve the public taste. It is as works of Fine Art that they are here considered to be not desirable examples for students; and any redeeming qualities they may and often do possess of another kind cannot elevate them to the rank of safe guides in educating the public taste in the knowledge and appreciation of one of the great general aims of art, beauty.

At the same time it would not be difficult, while admitting the difference, *in kind*, between fine or ideal, and portrait sculpture, to quote instances of a very high class of excellence in the latter practice. But it is rare, and only found where genius of a very superior order has been able to wrestle with the drawback opposed in modern time to the exhibition here, of true fine art, and so to stamp the work with exceptional value. It is the realism and minuteness which, as has been observed, are such essential ingredients in portrait, that remove it from that higher class whose province it is, or should be, to deal with the *general* rather than the *particular*, and, therefore, to chose for its exercise the most perfect forms. The over-careful rendering in sculpture of the lowest *minutiæ* of costume, as the cravat or necktie, entirely concealing the throat and the true setting on of the head, and scrupulous attention to the size and form of buttons and button-holes and similar trifles, must inevitably vulgarise a work and, so far, lower it in its relation to Fine Art, inasmuch as it places on an equality of representation the living man and the surroundings of the tailor and haberdasher. And yet, on the other hand, in order to avoid this, to represent an ordinary Englishman of the 19th century as an ancient Greek or Roman, or, half naked, with a blanket or cloak thrown over him for drapery, must be fully as objectionable from its untruthfulness and incongruity. The portrait sculptor is therefore exercising his art under difficulties for which great allowance must be made; but

no recognition of these, however liberal and charitable, can make works treated in the manner referred to, examples of sculpture worthy to be followed by students desiring to distinguish themselves in the nobler walks of art. For this purpose the very highest standard must be chosen.

Portrait sculpture in Greece: its deteriorating effect on art.

The great sculptors of Greece, when art was at its highest perfection, were never embarrassed by these difficulties and trials, for it was at a later period than the age of Pericles and of Phidias and his scholars that portrait sculpture was introduced; and it may be remarked, as a circumstance especially worthy of note, that the innovation, dating from about the age of Alexander the Great, heralded in the decadence of the art in its highest and noblest forms, both of beauty and expression. It must not be supposed that these remarks are made with a view to disparage portrait. The importance of portrait sculpture, both in the personal interest that attaches to it and in its historical value, cannot be overrated. It is simply intended here to point out the difficulties the sculptor labours under in modern practice, and especially in the present age, to elevate his works in this branch of art to the standard of the best known productions in sculpture. Realistic, or, as it is also called, naturalistic art, has its indisputable recommendations in the conscientious devotion it professes to the truth of nature; but even viewing art in its function of imitation only, to represent, however truthfully, what, though it may be natural, is at the same time totally devoid of beauty and, it may be, even repulsive, does not come within the proper domain of fine, or refined art; and the *minutiæ* of costume, which is of all things the most varying and artificial, cannot fairly come into the category of the "natural." In the course of this review opportunities will present themselves of more forcibly illustrating the principles above hinted at.

Schools of sculpture.

Recurring to nations, it would not be difficult to select from the numerous specimens sent by British sculptors sufficient examples to prove their claim to hold an honourable place in the practice of their art. It has not unfrequently been observed, as a kind of reproach or reflection, by critics of English art that it is wanting in the characteristics of a school; in the sense in which for instance, it is the custom to speak of the French, Italian, German, Flemish, and Dutch schools. The remark, however, if true at all, is only so in part; for peculiarities in national feeling will always distinctly show themselves in the art of every country, and thus give a certain stamp of individuality to its productions. It may be the demonstrative and exaggerated; or the religious and sentimental; or the *genre* and familiar, exhibited in

Schools of sculpture.

domestic incidents and home scenes and landscape; but marking unmistakeably the idiosyncracy or source of sentiment of each. But, even if there be truth in the general observation, the fact itself may be accounted for. Art, when it first began to be practised by Englishmen, was rather an exercise than an impulse. Up to nearly the end of the last century sculpture in this country was exclusively in the hands of foreigners, as Roubiliac, Rysbrach, and others; and when Englishmen began to practise it it was rather to meet a trade-demand, which hitherto had been absorbed by strangers, than as a fine art followed from original feeling. It was, at its best, more suggestive of the times and conventional teaching of academies, or of the practice of some popular modern leader in art, than of impulse caught either from the study or love of nature, or from refined sentiment, or a keen sense of the beautiful. And in this may, possibly, be found a reason for its slow growth among us, and its inadequate appreciation by the general public. It was, at its opening, beyond or foreign to their sympathies. Even of Flaxman, of whom England is justly proud, it may with deference be said he based his practice chiefly on the traditions of the "antique," while the prevailing sentiment of his compositions has the flavour of the simplicity and gentle quaintness of the early earnest Italian artists of whom he was so great an admirer. It must be remembered, also, that almost every country in Europe had had for centuries its school of design, and boasted its artists of deserved reputation, while England did not possess a single sculptor whose name merits notice. Painting had its followers here somewhat earlier; but till nearly the end of the 18th century the sister art had no practitioners of any power; and therefore what character it had was not derived from original feeling, but, as has been observed, from such examples, often of very questionable taste, as foreign academies and schools had offered. But, admitting the force of the above argument for what it is worth, may it not be urged, on the other side, that the freedom from prescriptive trammels may have afforded to those who had not been subjected to them a wider field for independent and original thought? The discursive and varied character of subjects on which British artists have habitually exercised their talents, and the difference of treatment observable in their practice are strongly in favour of the view here taken. It may have acted less advantageously, no doubt, in sculpture than in painting; because sculpture requires, in the first place, a discipline quite distinct from painting; and also because the former art cannot, without some loss of its essential simplicity and dignity, deal (as an art of colour and *chiaro-oscuro* can) with common and ordinary subjects for imitation; in giving, for example, force and emphasis to some parts, and suppressing

others either by indistinct rendering or by skilful management of light and shadow. These are means of conventional treatment utterly denied to the sculptor.

Classification of sculpture under three heads.

It may be mentioned with respect to contributions of British sculptors that nearly all the works now exhibited have been already before the public, and have undergone public criticism. It is therefore unnecessary to subject them, on this occasion, to a repetition of this ordeal. Sculpture may, for convenience, be classed under three leading heads. In the first rank may be placed those productions which, dealing with the human form, show invention and original thought in conception and treatment, such as in poetical and historical subjects. Even domestic, or familiar, and *genre* works, if they are illustrative, may also be included in this category. In the second may be included portrait sculpture in its several branches of statues, busts, and medallions, etc. The third and last would comprehend sculpture intended for decoration, as compositions for pediments, friezes, spandrils, and other architectural accessories, not, as in the first division, illustrative of specific subjects. In this class would also be included works in carving, castings, chasing in metal, and *repoussé* work, being imitations (treated in an artistic spirit) of natural objects, especially the human and animal form, with flowers, fruit, etc. Examples will be found in this class of art in its own department, under the general heads of Pottery and Ceramic Art, and ornamental Plate. It would be impossible here to enter into a detailed examination of the numerous interesting specimens contributed by well-known establishments in these important branches of what may be termed industrial or applied sculpture, though it may come within the scope of our functions to particularise some of the leading firms who are conspicuous exhibitors in this class.

Colouring sculpture.

Among the works in sculpture which, by right of merit and subject, will come under the first head of the above classification is one that will attract attention from some peculiarities in its technical treatment. This is the introduction of polychromy in sculpture; and it is on this account that it is here selected for especial comment. It is a group in marble of a Woman and Child, by our eminent countryman, the late John Gibson, and is a good example of that admired sculptor's talent. The forms are carefully studied, the drapery is composed effectively and in harmony with the movement of the figure, while the execution exhibits the well-known power of the accomplished artist. But the accompaniments given to this performance, of blue eyes, tinted hair, and flesh colour (or what is or was intended for it) in the naked parts, with gilding in other

Colouring sculpture.

portions, almost removes it from the category of pure sculpture, and may be said to convert it into an example of decorative art. It has been said that the use of colour in sculpture is merely a question of taste. Not so. It may confidently be argued that if the true function of sculpture is to represent by form only, such productions as the one under consideration challenge criticism on false and mixed grounds; that is, as both sculpture and painting. But the warmest admirer of flesh-tinting marble statues would, scarcely, it may be presumed, consent to subject the process to the test of criticism as painting; and this seems to dispose of the matter as a question of fine art. Our worthy countryman based his practice in this particular innovation on the assumed authority of the ancients; but the fact—which, however, must be admitted with considerable qualification—that in some instances the Greek sculptors employed extraneous accessories, as paint (and then always in thick body-colour) and other materials, to add to the effect of their works, affords no sufficient argument for their use by modern artists, either as a justifiable practice or as a means of improving sculpture.*

Danger of the picturesque in sculpture.

So in another branch of practice, before alluded to, where the *picturesque* is too prominently sought after. Here it often happens that the forms are rather implied than defined. In these cases of sketchy and indistinct execution, a true art condition is departed from, and is not to be justified, however dashing and bold the treatment may be. In works so represented it is not *form* that is given, but only a more or less vague indication of it. It is a maxim, already adverted to, that in fine art the forms selected should be good, and, of their kind, beautiful; and it is for this reason that the finest ancient sculpture, which always shows the submission of its authors to this principle, holds its empire in the opinions of all persons competent to judge on such questions. The attempt to treat an art of form in a slovenly, undefined way, for the purpose of producing picturesque effects for which it is not calculated, is not only a most dangerous—and it may be said illogical practice—for, strictly speaking, *undefined* form cannot be accepted as form, in a sculptural sense—but it tends to lower the character of sculpture (which in the best ages had the prestige of a chaste and somewhat severe art) to a species of claptrap, prepared to excite the surprise and applause of uncultivated minds. Moreover—and this fact should always be remembered—wherever it has been attempted it has uniformly resulted in the decadence of the art. Even the genius of Bernini, of Giovanni di Bologna, and of Roubiliac, who were the greatest leaders of the

* This must be taken as the individual opinion of an eminent artist.—ED.

picturesque movement in sculpture, could not save the art from its inevitable fall—the sure and fatal consequence of their corrupt system of "bravura" and dashing effect of execution. But even here due credit must be given to those able artists for one redeeming particular of their practice; and this was the care they gave to the defined and accurate representation of the objects they imitated. Their works exhibit no examples of slighted forms. However objectionable the taste which ruled the design, all the details were presented under the required conditions of the most careful attention and finish. Danger of the picturesque in sculpture.

In commencing with the British Department it is gratifying to find that H.R.H. the Princess Louise shows her interest in art by contributing a statuette to the Exhibition. British sculpture.

Among the more prominent works in marble, attention will be attracted to some of great merit by Messrs. C. Marshall, Durham, Stephens, Bell, Birch, Leifchild, J. Westmacott, the Woods (W. and M.), and Wyon, who, exhibiting various subjects requiring reflection for their due expression, have presented them in well-studied forms, and with the recommendation of careful execution. If the limits to which this paper is confined allowed of a more extended notice, other artists, as Crittenden, Davis, Earle, Theed, Sharp, and two lady sculptors, Mrs. Thornycroft and Miss Durant, might be mentioned as contributing works of various degrees of merit in marble and models in plaster. The omission of other names and works from this notice must not be attributed always to their want of merit, but to the necessity of condensing as much as possible a Report which does not profess to include any detailed criticism of (fine art) sculpture.

Italy has contributed some works of very superior merit; by (the late) Finelli, by Caroni, who has several excellent productions, by Salvini, and by Tantardini. Their statuary in the Italian Gallery deserves notice for its truth and careful execution. The last-named artist exhibits several statues of the *genre* or costume class, which, for the study of characteristic details, and especially for the skilful manipulation of the marble, are, of their kind, highly meritorious productions—praise which may justly be extended to many others of the foreign sculptors here met with, as well as to those whose works are distributed in various parts of the building, as Amici, Barzaghi, Fantacchiotti, Chelli, Fontana, Lazzerini, and Torelli. In the productions of this school, even when exceptions may be taken to the subjects selected for imitation, there is indication of sound and careful elementary training in the study of form which might be usefully adopted elsewhere Italian sculpture.

Italian sculpture.

Indeed, the art of the chief foreign schools may be said generally to exhibit marked superiority in this important particular. Where the works may seem to fail in other respects, there usually is evidence of a thorough knowledge of form—or what is understood, in the language of art, as "drawing"—from which it may be inferred that correct design is, as it always should be, a subject of most careful attention in the education of the student.

Belgian sculpture.

Belgium is well represented in the works contributed by her sculptors. Among these are Messrs. Geefs, De Leemans, Fraikin, Fassin, Van Oemberg, Rombaux, Du Caju, and Sopers, whose various productions, some of very high merit, would receive here a more extended examination but for the reasons previously adverted to. Little more can be done than mention the names of the more distinguished contributors, trusting that here, as elsewhere, even so slight a reference will lead the visitor to give the works the careful attention they deserve. There are many works by sculptors having German names, but whose places of birth or residence are not stated in the lists to which the writer of this notice has had access. These artists are therefore requested to make allowance for any errors that may appear in classifying them. Many works referable to German sculptors are placed in the British department, and the attention of the visitor who takes an interest in this art will be arrested by some productions of striking merit coming from that country, as well as from neighbouring localities. Among these should be noticed especially the works of Voss, Junck, Jerichau (of Copenhagen), Raemaekers, Van Denbosch, and Boehm. The style of this last sculptor may generally be referred to the realistic and picturesque school. His works exhibit great merit, and his busts in *terra-cotta* are carefully modelled, full of character and true to nature.

Bavarian sculpture.

Two busts, one of Beethoven, by Conrad Knoll, and one ideal, called Lady Macbeth, by Hirt, are contributions from well-known sculptors of Munich.

French sculpture.

French sculpture is not adequately represented in this Exhibition, but the visitor will observe much to admire in the contributions of MM. Clesinger, Carlier, Gruyère, and others, in bronze and in marble. Some statues and two large busts, in various materials (bronze and coloured marbles), by Cordier, have great merit, but, like all similar productions, they seem to belong to the department of decorative rather than Fine Art.

Pottery and ornamental plate.

Although no lengthened description can be given of particular works, the visitor's attention should be directed to the very interest-

ing collection of pottery and ceramic art, and to some good specimens of applied art in ornamental plate. It is very important that these works should here receive marked notice, as they exhibit in the application of a good style of design in their several specialities the great progress that has been made in industrial art of late years. The contributions of Messrs. Minton, Copeland, and Wedgwood; of the Royal Berlin Porcelain Works; others from the Worcester Works; from the Royal Porcelain Works at Copenhagen; from Messrs. Bing & Grondahl; from Gustafsbergs Co. (Sweden), and others, will amply repay the attention the visitor may bestow on them; while the productions of the English firms of Messrs. Hancock, Garrard, Elkington, and some few but good specimens from France, exhibit most satisfactory proofs in the industrial products of their respective profession of the successful practice of the various phases of art.

Pottery and ornamental plate.

Wood carving and sculpture in terra-cotta.

It would be wrong in a Report in which it is desired that reference should be especially made to the employment of sculpture to useful and ornamental works, not to take notice of some good wood carving that may be found in the furniture department of the Exhibition. Distinct reference should also be made to the extensive use now prevalent of *terra-cotta* in architectural decoration. There are some very creditable works of fine art sculpture in this material, but it is in its application to useful or decorative purposes that its importance is to be recognised in this place. The successful use of *terra-cotta* may be seen in the enrichment of the columns and other parts of the new buildings at the South Kensington Museum; in the Royal Horticultural Gardens, in the Albert Hall, and elsewhere; proving how valuable this application of art may become. There are some very good productions in this material by Boni (Italy), as well as by French artists; by the Crystal Palace Ceramic Art Union, and other well-known establishments. Among these may be especially distinguished the English firms of MM. Blashfield, Blanchard, and Doulton & Co. In thus referring to these houses it is only an act of justice to bear witness to the great improvements that have been effected by them in bringing *terra-cotta* into more general use. The most satisfactory results have been secured in modifying the more striking defects caused by the shrinking of the clay, under the processes of drying and, subsequently, the strong action of heat in firing. The ill-finished work of former days often, nay usually showed broken lines, irregular joining in masonry, and unworkmanlike execution. There are examples now on exhibition, reproductions of really good sculpture, which show that these difficulties—and therefore the objections to the employment of *terra-cotta* (except for the commonest objects) are almost if not entirely overcome. This is a most important achievement when the durability and, compared with marble or

Wood carving and sculpture in terra-cotta

stone, the cheapness of the material are taken into consideration. The opportunity is now presented of obtaining every variety of effective decoration, for architectural and similar purposes, at a cost within very modest means. Without pretending to place *terra-cotta* works on an equality with highly studied and refined original ornamental (carved) sculpture, it must still be admitted to be a most valuable substitute for it; and, as its employment is now being extensively adopted by architects, this reference to the progress made in adapting it to their requirements for mouldings, cornices, friezes, keystones, and similar works, cannot be considered out of place.

The artistic quality exhibited in what may be classed as industrial works, including furniture, or where gold and silver work, carving, bronze castings—in figures and groups for ornamental plate—clocks, lamps, sideboards, and cabinets are introduced, and in which both taste in design and skilful execution may be found, will, of course, be considered in the Reports to be furnished in their several departments. While, however, the consideration of details may be safely left to the competent examiners to whom this duty has been assigned, it may not be irrelevant to remark here on the general character of the art now seen in such productions, compared with that shown in similar works of half a century ago; and it is gratifying to be able to bear witness to the fact of the great improvement that is exhibited. This praise applies to the style of their ornamentation, to the variety of subjects illustrated, to the choice of form, and to the greater freedom and breadth of treatment observable in execution. Now there can be no doubt, and too much stress cannot be laid on this fact, that all this progress may fairly be attributed to the influence exercised by the higher forms of art having been more carefully studied. A class of artists has thus been formed who, when they may not have been successful in achieving all that their earlier ambition led them to aspire to, have, as educated artists, lent their talents to improve art in what may, it is true, be considered a subordinate branch of practice, but which is not the less worthy of care, inasmuch as its effects, in an educational point of view, are distributed over a larger surface.

In concluding this summary it is right to mention that since its completion many additions have been made to the sculpture contributed to this Exhibition, especially in works by foreign artists. Their late arrival has prevented their being noticed as, in many cases, their merits deserve. It is also a matter of regret to the writer that he has felt himself precluded from entering more extensively and critically into the examination of many individual works of merit in sculpture; but neither the space at his disposal nor the restricted object to which he has felt himself confined has permitted this.

It must be borne in mind that this Report does not put forth any pretensions to be considered an essay—critical or theoretical—on Fine Art. It simply reviews the present condition of one branch of art, in its relation to, and influence on, those industrial products in which the employment or reproduction of form of all kinds constitutes the leading element.

Value of art education.

The application of improved taste and methods in industrial design has opened in recent years a large and very important field of practice; for where only a very few persons have a real love of, or are gifted with natural taste for Fine Art, and are competent to judge it correctly, or who, having these rare qualifications, possess the means of acquiring fine examples of sculpture, there are thousands whose sense of the beautiful may be advanced, or even created, by seeing around them, in the ordinary objects of daily and familiar use, pleasing forms and combinations, and skilful and delicate workmanship, which may both educate their powers of observation, improve their taste, and add immensely to their enjoyment. Nor can it be supposed the good effect of this education or development of the sense of seeing—and this is an art in itself—stops here. Even from the material point of view, the cultivation of a love of art, in its teachings of the charms and value of the beautiful, has recommendations which will be admitted by every intelligent and unprejudiced mind. But beyond this, without laying undue stress on the beneficial effects to be expected from the study of art, or indulging in romantic ideas or speculation on its power to refine and improve human nature, it may still be presumed that the exercise and education of the faculties in endeavouring to ascertain what constitutes beauty—that subtle quality or attribute which may be found, by those who know how to look for it, under different forms and aspects, in all created things—may bear fruits infinitely beyond our immediate cognisance. Is it too much to say that the whole moral feeling of society ought to be and may be elevated by the lessons thus taught, and that from the power or aptitude thus imparted to it to appreciate beauty in material things, the mind may learn to seek it in a still wider and nobler field—in sentiment and in action—and thus acquire the habit of associating the idea of the Beautiful and the Good in all the relations of life?

REPORT

ON

FURNITURE AND METAL WORK

In the International Exhibition of 1871.

By J. HUNGERFORD POLLEN, Esq., M.A.

FURNITURE does not form a distinct class in the Exhibition of this year; our Report, therefore, deals only with a few objects sent as examples of design, workmanship, new material, or new invention, and it will be seen that though these objects are comparatively few in number, the novelties, both in design and workmanship, are numerous.

The leading firms of makers of sumptuous furniture are exhibitors in the British Galleries, and the visitor will find examples of the most costly production and the best workmanship that Europe can produce. Messrs. Gillow, Collinson & Lock, Jackson & Graham, and Trollope are amongst the best known of our great English producers (we name them in alphabetical order); while Messrs. Fourdinois, well known as competitors and medallists at our great international exhibitions of former years, are expected to represent the design and the workmanship of France, so renowned in Europe and America.

Improvements in furniture since 1851.

It cannot but interest any observer of the tests which these exhibitions afford us of the changes of fashion or taste, to see how great the differences are in this matter of domestic furniture since the first great gathering in London in 1851. Our own makers in England have derived not a little advantage from those competitive displays, as a glance round the galleries in 1871 will show. The excellent cabinet work which maintained the reputation of Chippendale, his father and son, Sheraton, Lock, and a number of names well known in the latter part of the last century, was

Improvements in furniture since 1851.

made no longer. The good "English Louis XVI." design, for which we were much indebted to the Brothers Adam, architects of the Adelphi Buildings, Portland Place, and many private houses, had disappeared forty years previously. The wars at the beginning of the present century, and the social and economical consequences they entailed, seem to have made a clean sweep of the artistic designing and working power of the country as regards this class of productions. Though decorations, furniture, and art in all forms of this industrial kind, began anew under the Regency and the two subsequent reigns, the result in point of taste was small. In the special Report on Design ordered to be prepared by the Commissioners of the Exhibition of 1851, vagueness and want of propriety in adapting suitable designs to the several objects made is a constant complaint, whether reviewing the actual furniture and utensils or the designs applied to carpets, hangings, and other decorations. No such strictures could be applied to these productions in 1871.

Effect of foreign designs.

The effect of the good designs and careful workmanship, the former more particularly, of France, Italy, and other foreign competing nations, must be credited with much of the improvement we now see. We must not forget another still more powerful influence, the research made both in England and on the continent into the good design of furniture-makers of the 16th and following centuries. This country has been provided with excellent examples of the best period. While Mr. Pugin did much to revive the value of the good constructive principles and fine designs of the mediæval wood and metal work, the art of the Renaissance centuries has exercised, since his time, a still more powerful attraction. In this Exhibition we see classic furniture, one fine specimen of the designs of the mediæval period, several Renaissance designs, some wood constructions from various parts of India and from Japan—all most characteristic of their several methods of decoration; and a number of pieces of furniture, highly decorative and completely modern, for the bedroom, as well as the receiving rooms of the house.

To put more completely before the reader the distinctions of style more or less exemplified in the pieces contributed, we may notice summarily the changes which household furniture has undergone.

Sketch of the changes furniture has undergone: Classic.

The furniture of the Classic period is illustrated for us by some interesting objects contained in the central tower of the Foreign Picture Gallery. These consist of electrotype casts of old bronze furniture discovered at Pompeii. There are a bed or couch, two seats, a table, etc. These will be more fully described in the Report on Reproductions. A word, however, must be said of them

as specimens of Classic *furniture*. The couch is such a bed as we recognise in the careful painting of Alma Tadema, the Belgian artist. It is, in form, like our modern sofa. The ancients furnished these with mattresses, outer and inner, or over and under, and when sleeping, used on them woollen rugs, carpets, or counterpanes, according to the term we like to give to a covering hairy on one side, splendidly wrought in colours in the loom, and such as the "exquisite" of Imperial Rome would have paid a full price for as the production of Corinth. The material of the bed is bronze, with indications of inlaying in silver. The visitor will note how entirely the form is one borrowed from that of a construction in wood. The original either contained a core of wood, or was moulded from a model turned in the lathe. The seats are a "sella" and a "bisella," or "bisellium," a single and a double seat. Quaint heads of men, horses, mules, etc., are seen in the volutes below the seat, acting as connections between the seat-frame and the upper bar.

Sketch of the changes furniture has undergone Classic.

The height of the seats, in the days of the Roman Empire, was a privilege of personal dignity. Rich patricians or freedmen, farmers of the revenue, etc., had these chairs carried before them to theatres, to the law-courts, and other places of public resort, so as to sit "higher" than their poorer neighbours, and see over their heads. Another point of etiquette implied in the height was the use of a "scabellum," or footstool. These seats are also of bronze, inlaid, and following the lines of a wooden construction. There is also a bronze table frame, with the supports or legs connected by diagonal bars, shifting up and down in slots at the back, so as to be folded and carried away. To such a table, a marble or wooden slab or top would be fitted.

We pass from these relics of the past to the mediæval period, represented in the Exhibition by a pair of doors made for Costessy Hall. These are in the style of the 15th century, and are arranged and framed up like window tracery. The panels are cusped, and are filled in with shields of the families of Jerningham, Howard, Gerard, etc. The carver of these doors is Mr. Britcher. The whole are after the designs of the late Mr. Buckler.

Mediæval furniture.

In the next great change in the forms and construction of furniture, we find something like architectural structures, with pediments, columns, arches, and all the minute subdivisions of the cornices or coronas that finished the top lines of Classical architecture. This new style came into fashion in the late 15th and early 16th centuries. It followed the changes of architecture and sculpture. The Italians speak of the style as

Renaissance design.

Renaissance design.

"quattro cento"—*i.e.*, earlier than 1500—and as "cinque cento," when later than that period. It is known under the general name of Renaissance, as Classical learning was revived and taken up with great energy towards the end of the 15th century. Many powerful causes contributed to bring about the changes in architecture and art generally which then took place. One of the most effectual was the taking of Constantinople by the Turks. This drove what remained of Greek art, and the old refinement of a former age, into Italy. While these influences were brought to bear on Italian art, great men, the greatest artists that have been produced in modern or post Classic times, rose up; painters, sculptors, architects. Their names are familiar to everybody. It is only necessary here to point out that these artists, or their pupils were not above devoting their talents to every form and variety of art. Michael Angelo, Leonardo da Vinci, Sangallo, Cellini, designed and made goldsmiths' work and jewellery, as well as canals, fortifications, wells, reservoirs, and other engineering operations, without ceasing to paint pictures and sculpture statues. The grand dukes and great noblemen of Florence and Rome employed them in executing costly cabinets, tables, and room furniture. They painted and carved chests and caskets, many of which remain models of excellence to this day. Every form and variety of the costly furniture of that day may be seen in the South Kensington Museum.

This the prevailing style.

It is in this style that we shall find the most costly pieces of furniture in this year's Exhibition. Some of these reproduce, but not in any way as direct copies, the characteristics of the earlier or *quattro cento* period; others, the fully developed splendours of the Renaissance, or *cinque cento* style, when it had become the reigning type of art in all forms, furniture not excepted, all over Europe.

Quattro cento work.

Thus, in the British Gallery, we recognise, in a sideboard of the Messrs. Gillow, which is exhibited in connection with a panelled wall, much of the feeling of the earlier period. The wall panelling, which accompanies the sideboard, is a sample of the wood work with which Messrs. Gillow propose to fit the room for which it is made. No plan can be suggested more judicious than this for giving the full expression to the designer's intentions. Our neighbours in Paris have, in all exhibitions, well understood the value of "backing," or seconding the furniture they exhibit by a small enclosure or background, to show how they propose to adapt the rooms of the house and the furniture to each other. Where there is room for such an addition, it both sets off the particular object, and adds to the effectiveness of the whole hall or gallery.

In the instance of the sideboard of Messrs. Gillow, and its corresponding woodwork, the delicate lines of moulding, small subdivisions

of panels, careful insertion of carved work, partly after nature, but still with a suitable reserve of conventional treatment, and the border or fringe of little rails, turned in the lathe, with fine lines and neckings, carry us back to the effective use of such forms and divisions as characterise the early Renaissance work in our museums. Paintings, also, are proposed to be structurally united with the woodwork. Suggestions of family portraits are let into the wall-panels so as to bring the painter and gilder into co-operation with the joiner and the architect. Other pieces are exhibited by the same firm, which exemplify the characteristics of this interesting period, the early dawn of the Renaissance arts; *e.g.*, a cabinet of ebony or ebonised wood, inlaid with small panels of pear and amboyna wood, both of a soft light brown. These materials are lightly and elegantly intermixed, so as to reticulate the black agreeably with the lighter colour. The metal work, handles, lock-plates, etc., are made in copper instead of iron, or any white or even gilt metal, the more completely to preserve this harmony of tone.

Quattro cento work.

A cabinet, in two stages, exhibited by Messrs. Collinson & Lock (No. 3053), is conceived in the delicate lines and divisions of this early style. It is full of ingenious little drawers, shelves, and receptacles reminding us, in this respect, of the quaint devices of the Japanese cabinet-makers. The central portion of the upper and lower stages is shut in by doors. These are panelled, and the panels occupied by Classical figures, painted in white or vermilion, and with birds, all admirably drawn. The dark wood (mahogany stained black) is covered with arabesque painted ornament, and the supports at the angles are turned in the lathe. These have delicate strings and neckings, but no violent lumps or protuberances.

Cabinet by Messrs. Collinson & Lock.

The difference between the furniture of the 15th and that of the 16th centuries is the same as that between the architecture and the painting and sculpture of the same period. The one was in a transition state, and retained much of the tender feeling of earlier associations. The other launched into the Classical spirit completely. The earlier was delicate and refined, the later skilful and bold. The earlier style was without the breadth and largeness of treatment that distinguished the later.

Differences between 15th and 16th century.

Amongst the decorative features in furniture still more characteristic of this later than of the former period, we notice the architectural character thoroughly pronounced. As to this period the great artists mostly belonged, so the productions in the form of furniture, which reflected their designs, have maintained the longest and the widest popularity. Amongst the leading objects in the Exhibition illustrative of complete Renaissance design, we shall not fail to notice the costly cabinets, in ebony and marquetry,

English cabinets in the style of the 16th century

English cabinets in the style of the 16th century.

of Messrs. Jackson & Graham (Nos. 3066, 3068); and in ebony, carved and inlaid with painted metal plates, shown by Messrs. Trollope & Sons (No. 3088).

The first-mentioned is a cabinet of 16th century design, in two stages. Each stage has doors and narrow drawers below the receptacles they enclose. It is a model of workmanship. As we open and shut the doors they seem almost air-tight, as the fine surfaces of the doors and frames fit into each other as though oiled. The panels are inlaid with engraved ivory, lapis-lazuli, etc. There are on the work no figure designs. It finishes with a pedimental top. The design is by Mr. Alfred Lormier.

In the inlay and veneering shown in these sumptuous cabinets, it should be observed that stone and various woods are employed together, and that the utmost skill has to be shown in the juxtaposition of materials, and in preparing and seasoning the wood so that it shall not shrink from the stone it holds. All wood is liable to lose in bulk as the juices of the tree dry up; and some, such as oak, takes so long before this process is complete, that years—in the case of oak in large beams, even centuries—are often insufficient to dry the heart of the wood absolutely and completely. In forming a judgment of the care and experience necessary for complicated pieces of work highly decorated, all these elements should be weighed.

The two ebony cabinets, exhibited by Messrs. Trollope, are decorated with carving and inlaid with plates painted in grey after the grey Limoges enamels of the 16th century. These greys are kept very grave and low in tone. The carving of the foliage in both these cabinets has been noticed already in the Reports of the Jurors and others employed on that class of objects in the Paris Exhibition of 1867. This part of the work is from the chisel of Mr. Rogers.

...ach ...amples.

The French cabinet-makers have preceded our own in the manufacture of modern ebony cabinets. M. Henri Fourdinois, the maker of an elaborate cabinet, for which a gold medal was given in the Paris Exhibition,* is the principal exhibitor of costly furniture, amongst the foreign contributors. He has produced inlaid work, which is not merely a thin mosaic of slices of wood, ivory, etc., cut to fit each other and glued to a solid base. He has regularly married his woods together, fitting thicknesses of two or more woods one into each other. This is a solid inlaying, far beyond the slight thickness of veneers, and is a massive method of working worthy of Classic authorship. Besides the inlaid work of

* This was purchased for the National Collection, and is now in the South Kensington Museum.

his cabinets, M. Fourdinois employs the resources of wood sculpture, and the figures that decorate or support his furniture of this kind should be taken as samples of the excellence of the French artist-workmen. French examples.

A fine walnut-wood cabinet, by Fourdinois, is placed in the French Annex. It is in two divisions, supported on Sphinx figures, with circular pedimental tops to the upper portion, over which are carved recumbent figures in the attitudes of Michael Angelo's, "Night and Morning." The limbs of the Sphinx-supports suggest life and motion, perhaps to excess.

M. Lama, an Italian maker, exhibits a small, elegantly-decorated cabinet, in ebony and ivory.

During the Renaissance centuries inlaying and veneering came into prominent use, first in Italy, and more gradually in the north of Europe. Inlaying is the insertion of precious woods, ivory, pebbles, lapis, or other hard stones, into the wood that forms the base of the surface decorated. The process is not modern, as it was known and practised in Classical times. The Egyptians and the Ninevites inlaid their chairs and tables, their arms and chariots, with ebony and other hard woods, with ivory, and even silver and gold. Pieces of fine carved ivory, gilt in places, that have been inlaid in wood, but have outlasted it, can be seen now in the Nineveh Gallery of the British Museum. These are amongst the treasures found by Mr. A. H. Layard. Everyone has heard of the chryselephantine, or ivory and gilt statue of Minerva at Athens; this was an instance of both inlaying and the further process named—veneering—the base having been wood. Veneering was in general use in ancient Rome, both in architecture with thin slabs of marble, and in furniture on wood. Slices, or veneers, were cut from root wood, and from the lumps or heads of pollard wood. These produced the "birdseye," or rippled and wavy grain twisted into every imaginable curve which is now in use for similar purposes. Inlaying and veneering.

Ebony is generally veneered on other wood in this way. The wood "diospyrus ebenum" is found of various colours: black or brownish, yellow and green, but the black is the most valuable; we probably owe its introduction into modern Europe to the Dutch discoverers and colonists who occupied Ceylon about 1695. No less than 800 tons of black ebony altogether are imported from Ceylon in a year. Ebony is found in small dimensions only. No planks of any width can be cut from it, nor would the material, though close and hard, be suitable for the constructive requirements of joinery. It is generally veneered on mahogany. The under surface of the veneer or slice, and the

Inlaying and veneering.

upper surface of the solid wood base, are slightly roughed or rasped, so as to insure a sufficient openness of fibres. They are then covered with glue in a boiling state, and pressure is used to bring the two surfaces into the most complete contact. If anything like a bubble of air is detected between the surfaces this is pressed or knocked out with gentle blows of a flat-headed hammer. Screw presses then hold the two firmly together till the glue is thoroughly dried. When this is done by experienced workmen the woods will often split or break away in any other part of their thickness before this connection gives way. Ebony cabinets are almost universally veneered. We have, however, a sideboard of ebony made in Ceylon great portions of which are cut out of solid wood.

The pietra dura.

Factories for inlaid work in marbles, pebbles, carnelian, and other hard stones, known as "pietra dura" work, have been long established at Florence. We call attention to two tables by Bazzanti, in the Italian Picture Gallery. The inlay aims at too close an imitation of nature, but it is very skilfully put together.

16th century design inspired by Italy.

During the costly and splendid age of modern furniture, all the artists of Europe followed those of Italy. Francis I. introduced Primaticcio and Benvenuto Cellini into France: and, in consequence of the schools of artists and workmen then established, all sorts of costly works were made in every kind of material.

Furniture from the National Schools of Art.

We must point out, as partly illustrative of the great school of Italian 16th century furniture-artists, a large buffet of walnut, made, we believe, wholly at the National Art Schools of South Kensington, or under the guidance of their teachers and students. This is a broad architectonic structure in the form of a chest, on legs or supports, and divided into three front panels, the central being the widest. These are filled with porcelain, painted after a drawing by Mr. Marks, by the female students at South Kensington. The subject represented is a May-day Procession, and the figures are dressed in Swiss or German costume of the 16th century, Holbein's period. The top finishes with a broad fascia band of carved leafwork, and a regular architectural corona The design of the entire structure is by Mr. F. Moody. The carving is simple but effective, and the whole has been produced at a moderate cost.

Another characteristic 16th-century piece of furniture, also designed by Mr. Moody, is a screen frame in the bold monumental style of the mortuary tablets, door-frames, etc., of the Italian architects of Rome and Florence, rather than the contemporary decorative ornament of Sansovino, and other north Italian architect sculptors. It finishes with the broken pediment, suggestive of a central bust, so commonly found in fire-place panels of its period.

The cutting is bold and very simple, and the gilding placed on edges, or in occasional hollows. *Parcel gilding*, as this is called, or partial application of such enrichment, is effective, without detracting from the value of the walnut wood of which the frame is made.

Oak furniture.

Heavy carved oak English furniture belongs to the Tudor and Stuart times, and similar, but more artistic work, to the contemporaneous reigns in France. Splendid works were turned out, in walnut, by Berrugete, afterwards by Alonzo Cano, and others in Spain. In Germany, we know there is a famous chest or cabinet, preserved in the public museum at Berlin, made in Pomerania, and decorated in all sorts of precious materials. A multitude of artists were employed upon it, whose names are recorded. In general, however, till marquetry came regularly into fashion, oak and pine were the materials used in Germany. The bold Continental 17th century work is represented in the present Exhibition by Messrs. Snyers-Rang, of Brussels, and such work will be seen in the Belgian division of the picture galleries and in the lower corridor. Belgium makes and imports to this country great quantities of oak furniture, in the quaint heavy style of the Flemish 17th century. The Swiss makers send similar work contributed by the Messrs. Wirth.

Marquetry.

The next great period or character in modern furniture must be called that of marquetry. This is a variegated, more or less, pictorial surface, formed by very fine veneers. These thin slices of wood form a mosaic of many colours.

Intarsiatura.

The earlier use of this decoration had been called intarsiatura, and it was simple and grave enough for the ornamentation of church benches and stalls. The later and lighter style was called marquetry, and seems to have been carried both farther in variety, and to greater splendour and completeness in France, though it continued to be made also in Italy, Germany, Belgium, Spain, not to say in our own country. We meet with wood inlay in old English chest panels, bed panels, etc., as early as the period of Elizabeth; but where it is actual English workmanship, the inlaying is rude and simple. In the finer specimens of the great French cabinet makers, who were famous for work of this kind from the days of Louis XV. to the destruction of the monarchy, they represent floral or conventional designs. In the earlier furniture, such as cabinet fronts of the 17th century, figure subjects, often drawn with the utmost spirit and humour, were displayed. Hunting scenes, ove making, landscapes, etc., were literally painted in coloured wood-work. The Spaniards, the French, and the Italians were

pre-eminent in these spirited productions. Examples may be seen in the South Kensington Museum.

Older kinds.

A certain simplicity, decision, and even humorousness characterises the 17th century work of this early kind. Architectural façades, the insides of rooms, etc., are often found as the decoration of panels and table tops belonging to this period. The object is to do as much as possible by the juxtaposition of woods, and the ingenious use of the natural line and curves in the grain of the wood. Often such work was made in two woods only, or in ivory only, besides the wood that forms the groundwork. Various methods were employed to help out the graphic effect of the little figures, subjects, or patterns. Burning either with iron or hot sand, by which parts of the lighter coloured material inlaid are shaded or darkened, so as to express the varieties of colour between yellow and warm brown, was one method. Etching with a graving tool was another.

Boule work.

In France, however, in the reign of Louis XIV.—so splendid an epoch for writers, statesmen, generals, and magnificent gentlemen—there was produced a new and very costly style of furniture. This went by the name of the first maker, André Charles Boule, and was called Boule (or, as it is sometimes mis-spelt, Buhl) marquetry. Whether Boule was or was not actually the inventor of the marquetry in tortoise-shell, ivory, brass, and white metals, which goes by his name, may be questioned. Boule was born in 1642, and died in 1732. He was made head or director of the Royal establishments, and was lodged in the palace of the Louvre. He was employed to furnish the new Château of Versailles, and obtained a great name all over France. There are several excellent examples of modern Boule cabinet work in this Exhibition. The peculiarity of Boule's invention was the employment of thin slices of metal, ivory, and tortoiseshell. In his earlier works we find coloured enamelled metal. But later Boule work was simpler, and took bolder and larger forms than those of the early specimens. The general form of furniture was now changed. Carving was no longer required on cabinets or on table-legs and bars. Everything was sacrificed to surface ornament. To vary this surface, Boule adopted a system of curved and recurved surfaces, so as to give effect to the lustrous material that covered it.

Examples in the Exhibition.

We may illustrate this period of furniture by the table and other Boule contributions of Mignienne, and by those of Wertheimer.

The large commode by the latter, though square and upright, finishes with pedestals for a clock and chandelier; a common form in old furniture of this manufacture.

Examples in the Exhibition.

At the same time metal mounts became important parts of the decoration of furniture, as we shall see on referring to the modern examples exhibited this year.

Boule work is costly and laborious, and is rarely made by our English cabinet-makers, except in small fancy articles. In this manufacture two thicknesses, or three, but usually two, of material —shell and metal, or metal and wood—are glued together. The pattern is drawn upon the outer surface, and a small hole bored where the pattern will not show it. Into this hole a fine riband saw is introduced, and the entire figure cut out. When the thicknesses of material are separated, there are, of course, two (or more) figures, and as many openings, exact counterparts one of the other. The later Boule work was made in this way, always in the double, so that by fitting each figure into the matrix or vacant shape of the other material, a double veneering was obtained from the same operation, technically called "Boule" and "counter"—brass in shell and shell in brass. But the earlier and rarer pieces of Boule were made at more cost; the refuse, or alternate ground or pattern, was thrown away.

Origin of bombé work.

The use of curved surfaces was not confined to Boule marquetry. Bombé, or bulging cabinets, chests of drawers, etc., became a fashion during the reign of Louis XV. They were inlaid with marquetry of coloured woods; and carefully-made specimens of that work are now much valued.

Dutch marquetry.

The political events connected with the revocation of the Edict of Nantes, in 1686, drove numbers of clever workmen to Holland. Daniel Marot and others were patronised by the Stadtholder, and French furniture designs became the fashion in Holland. The bulbous, bandy-legged marquetry chairs we see in old houses of the reigns of William III. and Queen Anne owe their origin to this French, and then Dutch, source. We have no marquetry in this year's Exhibition that represents this heavy but picturesque fashion. Other marquetry of the last century in England was made of holly let into walnut, sometimes varied with pear, etc., with designs generally more elegant than those of birds, etc., derived from the Dutch.

This last light work has never been reproduced, as far as we know, by modern cabinet-makers, nor have we any illustration to point to in the year's Exhibition.

Louis Quatorze gilt-work.

To the same period on the continent, that is, the early half of the last century, belongs the brilliant gilding so well known as Louis Quatorze, or Louis Quinze ornamentation. The severe lines and mouldings of the semi-Classic taste of Louis XIV. gradually

Louis Quatorze gilt-work.

gave place to a gay, broken, shapeless system of outlines, partly suggestive of shells and broken curves and spirals, easily cut in light wood, and peculiarly suited for showing off gilding. As the costume of the day, and as the manners of the period became "modish" and affected, so did this taste in furniture. Still, in glass frames, room panels, etc., it is not without a certain remnant of grace. Our own country followed the fashion, and we find old carved mirror frames and wood-work executed in the same taste. Cabinet-makers of the name of Chippendale made this work famous. We meet with looking-glasses of which the frames are cut into Chinese landscapes of a fanciful kind, by Thomas Chippendale. His father's work was more strictly in the French taste.

Italian gilt wood-work.

The Italians during this period produced far finer gilt frames, console tables, etc. They cut compositions of great acanthus leaves, rolling and curving over in magnificent sweeps. Examples are to be found in collections in this country. The Italian carvers of Florence have fine soft wood, which they can cut boldly with sharp tools. Some of these graceful frames give one the impression of having been carved out of an almost unresisting material by sweeping single cuts.

Italian gilders.

The Italians have always been admirable gilders. We see examples in the table supports of Bazzante in the Italian picture gallery.

They had for centuries the secret of preparing a matted ground on which to lay their gold, which was pure and thick. The ground was worked over delicately with tools, and the utmost richness of effect obtained by these simple means. But, in the last century, they undercut and rolled over their acanthus leaves in the huge sweeps described; and the edges, ribs, hollows, and surfaces when well gilt, were more effective, though less sparkling, than the more uneasy broken forms found in the Louis XV. period and in the Chippendale gilder's work.

Riesener marquetry.

Two makers, of well-known reputation, gave their name to furniture towards the close of the last century in France. The best known is Riesener, who was born about 1740—50, and worked in mahogany, snake-wood, and marquetry. His work is highly-prized and still sells for large sums. His marquetry is graceful in line and well composed. He was fond of delicate colouring, such as inlaying maple or sycamore or other light coloured woods with others also very delicate in hue. He leaves spaces of his ground-work unoccupied, divides his whole composition in the middle, where the two drawers of his commodes meet, and keeps side panels very quietly diapered or laid out with flat arrangements of simple patterns.

With him was associated a metal-chaser of the name of Gouttière or Gouthières. The woodwork of the one was mounted with bindings, legs, edges, and lock-plates, etc., exquisitely modelled and chiselled by the other. We meet with work of Gouthières in modern sales. Gouthières mounts.

Other names connected with this sort of furniture are known, but none have the reputation of these two.

The Italian makers also followed the same fashion of work. The Venetian, Milanese, and Florentine makers produced marquetry in the same style, but with less finish and delicacy. The two makers we have named furnished the "Trianon," a small house in the park at Versailles, the favourite residence of Queen Marie Antoinette. They continued to work for the Court till the overthrow of the monarchy.

Of furniture, illustrative of French marquetry, we may point to a table by Messrs. Jackson & Graham, and to an oval table (in the English Picture Gallery), rewarded by the Society of Arts. The first is in Amboyna wood; round the edge are delicate borders of hare wood (grey), palm cut on the cross, holly, ebony, and various other woods. A cabinet, mounted with chiselled gilt metal work, in the manner of Gouthières, is also exhibited by Wertheimer. (No.3092). Other improvements in furnishing took effect during this period. The discoveries of Herculaneum and Pompeii revived a feeling for the Classic; and the extravagant carvings and sprawling lines of gilt wood-work gave place to the clean-cut, careful flower-work we now call Louis Seize work. Examples in the Exhibition.

We may point to a console table, carved for gilding, in soft wood, exhibited by a Dutch maker, in the Furniture tower, as an illustration of this kind of work. Panelling and room fittings of all kinds were carved in France at that period in this elegant fashion. The French carving, however, of the late 18th century, lacked the full sweep and grace of the contemporary Italian designs, and the same may be said of the carving of our own country. Examples of carved gilt work.

A great impression was made on the furniture, as upon the architecture of his day, by Sir William Chambers, the architect of Somerset House; and still more during the "Louis Seize period," by the Brothers Adam, well-known architects and designers.

John Baptist Cipriani was invited to come over to England, and became a great designer of decorative wall painting, and in painting panels and ornaments of various kinds on furniture. Satin-wood, a beautiful amber-coloured grain, taking a fine polish, was veneered Satin-wood furniture.

on mahogany and other woods, and decorated with little panels in camaieu (two colours, like a cameo sculpture), or borders of peacocks' tails, etc., painted by him and by Angelica Kauffmann, a Swiss artist, on the surface. Examples are quoted farther on.

Good marquetry, in woods generally light and delicate in hue, was made during the last century in England. The workmanship of these old pieces is admirable.

Classic revival in furniture.

Early in the present century, we find that the French expedition to the East, and the Italian campaigns, together with the establishment of the Empire, brought about a fresh Classical revival in France in furniture, metal-work—even in the draperies of costume. Sphinx and lion heads and claws, were carved on the arms and supports of chairs and tables. In our own country we find the dining-room furniture made in mahogany, constantly following designs from vases; some very good and appropriate, such, perhaps, as could hardly be bettered for useful and judgmatic construction, others stood on models of the legs of "trapezophora," or lion supports of tables and brackets found in the excavations of Italy. Collectors like Sir William Hamilton, and the members generally of the Dilettanti Society, went far in giving this Classic turn to the prevailing taste in furniture.

Revival of Gothic designs.

One great change took place in the public taste about 1820, viz., the revived taste for Gothic art. Not only was mediæval architecture revived and studied under various influential masters, but furniture was specially designed to meet the newly developed taste. The work had begun before Mr. Pugin's palmy days. Many sumptuous houses were built and furnished before mediæval principles of construction and decoration were half understood. Both in solid furniture, metal work, room paper—in short, every form of interior decoration—Mr. Pugin exercised a wide and a lasting influence. Light, well-made pieces of furniture were turned out from Mr. Crace's establishment and elsewhere; not to speak of the wood-work of the Houses of Parliament, which owed much to Mr. Pugin's publications on mediæval art. This taste has been variously modified since. We may notice, however, that while several examples of such furniture found their way into the Great Exhibition of 1851 and those of subsequent years, this taste is scarcely represented this year. Furniture being a kind of extra, and one of the forms in which art has been allied with manufacture, we are not entitled to conclude more than that no sumptuous or carefully decorated furniture of this kind, except the doors already noticed, has been turned out worth sending in.

Novel designs and inventions.

Happily, the resources of furniture invention in the present year are by no means exhausted, and we cannot but view the novel contributions of this kind with real interest and satisfaction. Not only do we see admirable work, more or less illustrative of the quattro cento and cinque cento periods which, full of inventiveness, we have tried to view in connection therewith, but there are several applications of simple principles so new that we must speak of them as modern inventions.

Coloured wood.

Under the learned term Xylatechnigraphy, we have, from the workshops of Messrs. Trollope, and designed by Mr. A. F. Brophy (3084, 3085, 3086), cabinets and wardrobes made of stained wood. In the case of the employment of many colours, the base of this work is pine-wood; and where black and white alone are used, it is sycamore—a white wood. The portions that are to be left white, or the original hue of the wood, are prepared so as to resist the action of the stains put on. As the light stains are added, these parts are also covered for the same purpose. By the time the darkest stain has been applied, these darkest portions have been steeped in all the stains previously used.

Effects of Xylatechnigraphy.

It is to be noticed that by this process the dyes sink deep into the wood, while the undyed, or delicately-dyed portions are preserved by stopping laid on them from any further action of the deeper tints than just the shades required.

Modern satin-wood furniture.

There are more than one resuscitation of the satin-wood furniture that was in fashion during the last fifteen or twenty years of the last century. In this description of furniture, borders, medallion figures, etc., are painted on the bare wood. The whole is then French-polished over. There is a cabinet of this material (No. 3091), with quaint, bevelled glass panels, and spirited little painted panels of mythological figures. Some of the examples exhibited are painted in water-colour, polished over in the same way, and proof against the action of water in consequence.

Ivory and other inlays.

We notice, in No. 3094, ivory inlaid into satinwood, and engraved, looking, at first sight, like white painted decoration, but very carefully designed; as also Hungarian ash, inlaid with the grey harewood, and with plaques of Wedgwood grey and white cameo ware.

Leather work.

In the lower corridor a large application to furniture of the Viennese coloured and inlaid morocco leather work should be noted. It forms a sort of cabinet, or great chest, on a stand of

gilt wood-work. We only regret the readiness with which work so delicate and tasteful would get soiled and dull without, we fear, being easily cleaned.

Chairs. We must point out the leather and other chairs of Ingledew (some seen in 1867, at Paris); others by Collinson & Lock, and Jackson & Graham.

Carvings. There are skilful pieces of carved wood, not belonging to furniture at all (3087), by Rogers; a frame (3080) by D. Dolce; a group in limewood of a pheasant and foliage, by Wallis. These more or less aim at that perfect representation of nature in soft wood, carried to perfection in the 17th century by Grinling Gibbons and his pupils; and some wood carving for clock-stands, etc., from Baden should be specially noted.

Oriental wood work. We prefer to notice separately the oriental productions, mostly exhibited by the Indian Government, which are some of them of such beauty that they form an exhibition worth studying by themselves.

Of wood sculpture in the form of furniture, we have but few specimens. We see, however, for the first time Scinde painting and Cashmere painting, full of its Persian feeling, applied to furniture. The chair of Hyderabad work, and the other pieces from Cashmere, are covered with excellent decorative painting, foliage, and shawl-pattern work. In the form of door panels, etc., which might be prepared in India and fitted here in England, such a method of decoration opens out to us entirely new sources for ornamenting house furniture. It will require great judgment and a real artistic taste to avoid making a vulgar use of such material; but there are definable limits within which this work would be of great service.

Scinde boxes. Another method of painting wood work should be noticed in the Scinde productions of the turning lathe. All shades of agreeable hues of red, green, yellow, etc., are used in this decoration, ingeniously broken by some handy knack of casting on other colours. The result is akin to that of marbling paper by the bookbinder. In that process oil-colour is flicked on the surface of water; one colour after another. It is waved, or curled like the grain of marble, by the handiness of the workman, and taken up by applying the paper to the surface. In the case of this wood-work the rapid action of the lathe either breaks the second colour or causes it to fall with the required regularity on the wood-work, and no more. Some curious wooden cups, painted in a simple manner in the lathe, from Khota, are worth notice. They are exhibited along with vases of earthernware, coloured like the cups.

Bombay work

The Bombay wood-work is of various kinds. The most modern invention from Bombay are the chairs and tables of pierced work, elaborately carved in hard wood. It is an attempt to adapt to modern European forms a laborious manufacture suited for different purposes. The chairs are not comfortable, and the tables in the least useful form. The small Bombay work, inlaid and carved in sandal-wood, is both national and admirably adapted for the sort of wares made from it. The inlaid work is arranged in circles, borders, or stars of minute pieces, in geometrical form; generally combinations of the triangle. The ivory, ebony, metal, etc., are cut in fine strips and glued into long sticks. These are cut in slices, and each slice shows the pentagon, circle, or other form composed of triangular dies of ivory, white and stained, ebony, tin, etc. It can then be veneered in the usual way; or as is more usual, *inlaid* into the solid sandal-wood. This art dates from a remote period. It is derived, according to the learned Dr. Birdwood, from Persia. The sandal-wood carving is executed at Bombay and Mysore. The work from Mysore is rather larger, more artistic, and freer in the use of figures than that from Bombay. It is better suited for small ware, panels, etc., than for expansion into articles of actual furniture.

Japanese cabinet.

We must not conclude these few remarks on oriental furniture without noticing the cabinet exhibited by Sir R. Alcock, from Japan (English Gallery). The whole decoration is in varied applications of stained straw fibre. The polished surface of the straw, stained to a fuller colour (if indeed the straw is not of its natural yellow, chosen from kinds grown in Japan) has in decoration the value of gold. The trees, birds, carts, etc., are quaintly but artistically placed on this splendid field. The small fittings of the upper part and the chased silver mounts, will remind the visitor of those fine productions in small ware in the manufacture of which the Japanese are artists with special traditions, but without rivals.

Japanese as artists.

The Japanese combine what we have scarcely known since the great days of European art—the artist, handy craftsman, and work-man in one; with secrets of metallurgy, gilding, and lac-varnishing in a number of mysterious ways, of which we know but the surfaces.

Chinese work.

There is a piece of Chinese sculpture, partly wood and mostly ivory, an elephant's tusk of unusual size, mounted in ebony, which should be studied, to show that Chinese carving, though not as good as in times past, is active still. These are solitary, or all but solitary, examples of Japanese and Chinese wood-work, which can

Chinese work.

be more fully studied in the South Kensington Galleries; particularly in the remarkable contributions to the Loan Exhibition of the Museum.

And with these remarks we must bring to an end our notices of furniture and wood-work. Though not numerous, the contributions of this year are so varied, and the number of novelties so considerable, as to be suggestive of changes or developments more than proportionate to the modesty of the present display. We pass to

METAL WORK.

The early nations of the East were familiar with mixed metals before they acquired the use of iron and steel. The Greeks had famous schools of sculptors in mixed metals at Egina, Delos, and Corinth. The general metal in use was an amalgam of copper and tin, known as bronze or brass. Other metals in small quantities were added, differently in different schools, and resulted in bronzes slightly differing in hue and in temper. The great statues of antiquity, which we now know in the form of marble copies, made by late Greek artists, were originally executed in bronze.

In studying many of the examples exhibited this year, we are brought face to face with some of the oldest forms and methods of metal work known. The art of working in metal, as everyone knows, is coeval with history. The very earliest historical records we have, mention or allude to metallurgy in gold, silver, and brass.

Use of bronze in Northern Europe.

The Romans brought the use of this metal for sculpture, armour, and arms, into Gaul and into our own country. Admirable shields and weapons, made by our rude ancestors during or subsequent to the Roman occupation, are in existence in our museums.

This ancient amalgam was revived and used with great effect by the sculptors of the cinque-cento, or Renaissance period, in Italy. Donatello, Ghiberti, Verocchio, Michael Angelo, and a number of great artists brought in the use of bronzes, in various degrees of toughness, and of varieties of colours, according as white metals or copper predominated, into Italy. A school of sculptors, in small works of bronze, has continued in that country to our own day. In France, and in our own country, bronze was used by artists for small work, and in our own times (upon occasions) for colossal public monuments. In this Report we are mainly concerned with metals as used for decorative work; and the use of bronze for mounts or finishings of furniture, carriages, harness, and various articles of hardware. The fine metal edgings so delicately cut and chiselled, which were used in the cabinets and commodes of the Louis Seize period, and during the corresponding period in

England, and on clocks, etc., were made of mixtures of bronze. The mounts on Messrs. Wertheimer's furniture, and a console table of steel and bronze, are examples.

Modern bronze.

The French use bronze for an infinite variety of small artistic objects, especially decorated utensils, such as lamps, candlesticks, etc. The house of Barbédienne is at the head of this production; those of Denière and others make similar works. In the French Annex a large assortment has been received from both these enterprising firms.

Though made as a manufacture in large quantities, it must not be supposed that this work is inartistic. The best modellers in France are employed on the designs; in return, the enterprising manufacturers reap the custom of the world.

Modern brass.

Brass, an amalgam of copper and zinc, takes the place of bronze in England. The metal is more easily worked in the lathe, and more valuable for trade purposes. Both these metals are in various degrees of toughness and hardness. This is regulated by the proportions of the copper to the other metals, which is two-thirds, or more or less than that proportion, to the rest.

In iron we notice a pair of gates, by Porter (No. 2840). In brass (Nos. 2834 to 2838), church utensils by Messrs. Singer, a lectern by Skelley (No. 2841), a hanging candelabrum, in the Belgian Gallery, of 15th century style. A mixed work, a pulpit of wrought-iron with brass panels, is exhibited by Cox & Son.

Enamelling.

Messrs. Wilkins, Betjemann, and others exhibit specimens of gilt metal writing-table furniture, some of it ornamented with coloured enamel.

More important enamelling is shown by Mr. Willms, in the employ of Messrs. Elkington. This is "*champléve*," the space of metal is dug out, and thick enamel let in, which passes the fire and becomes attached to the metal base.

Repoussé.

The same firm and artist exhibit other good metal decoration in "repoussé," beaten up from the back, and then finished with the graver in front. In Nos. 2801 to 2809 specimens of such work will be seen, all conscientiously carried out.

Silver and silver gilt work.

The race-cups we omit, as they will be included in another Report. Plate for church use is exhibited by Messrs. Cox, in the form of chalices, etc., taken from models of the 15th century, with certain modifications in some instances, *e.g.*, a square foot. The forms were originally governed by the particular convenience of handling during the office of the Mass. The square forms show that the reasons for the old arrangements are not observed.

Belgian plate.

The Belgian Court contains some fine specimens of goldsmiths' work of mediæval design, chalices, etc., and one remarkable central piece in the case in which they are contained. These are by Bourdon de Bruyne, of Brussels. The fineness of the worked and twisted rims and edgings, and the general finish, should be carefully studied. Amongst the Belgian metal work we ought not to omit the trophy in bronze, supported by four military figures, presented by the Antwerp Civic Guards to the British Volunteer forces. Specimens of the finer French silversmiths' work are expected, but at the date of this Report they are not yet under exhibition. Table plate of modern design, by Dufour, is also exhibited in the Belgian Gallery. Notices of the engraved steel work belong to another Report.

Indian contributions.

The most remarkable collections of the year in metal work are the various contributions from India. Here we find ourselves in contact with work precisely similar, in many forms, to the old Etruscan goldsmiths' work as it has been recovered for us from tombs in Italy and elsewhere. The methods of working gold now lost in Europe are still in full use in parts of India; particularly that of fretting gold by soldering fine spines or hairs of gold wire as delicate in effect as thistle down, yet done by unscientific workmen possessed of certain chemical secrets, which they put into practice by traditional usages. We touch only on this material, which is treated in the Report on jewellery; but the serious attention of visitors cannot be too often directed to this interesting subject, viz., the variety of artistic traditions in metal still in vigour in our Indian provinces.

Kooftgari-work.

The gold work which falls within our present inquiry is the Kooftgari work. This is iron, chased with a tool into which soft gold, very pure, is afterwards hammered, the rough iron taking, by this means, permanent hold on the softer metal, which gets beaten into the fine scratches and hollows. The most imposing use of this material is in the decoration of arms and armour. It is also used to decorate buckles, clasps, work-boxes or caskets, and various small objects for European use. The case of arms in the Indian Court contains specimens of this work on head-pieces, sword-blades from Gwalior, sword-hilts, etc.

Jeypore enamel.

We may also note the "translucent" enamels—that is, enamel colours painted on gold (generally), or gold leaf, which gives light and splendour to the colours. Jeypore is the finest school for producing this material; and several specimens of it are exhibited by the Governor-General of India in the Fine Art Galleries. A shield

of transparent rhinoceros hide, from Kutch, is decorated with a border and bosses of this translucent enamel.

Armour and bows.

Excellent chain armour is contributed from Gwalior, the Maharajah of which state still keeps a body-guard of a hundred horsemen arrayed in this romantic panoply.

Armour is contributed from Lahore; a steel bow from Sealkote; other bows of wood, highly decorated, are exhibited. With these the native archer can knock down a sparrow, and has a knack of causing the arrow to strike prey so small with the shaft, and not the point.

Other arms.

An elephant goad, from Gwalior, is richly inlaid with gold. A Fakeer, or devotee's crutch, plated with gold, and containing a formidable dagger, is contributed from the same State.

Stabbing daggers, that can be grasped by a transverse hilt, with which a man may strike an opponent above him while he is on the ground, are sent; the longest from Vizianagram.

A villanous weapon, known as a baghnak, a set of steel claws held by rings through which the fingers pass, is furnished from Gwalior. This has been before now the instrument of terrible deeds of treachery in Indian history, as the weapon is concealed by the closed hand.

Sword belonging to Lord Mayo.

We will bring our notice of these formidable treasures to a close by calling attention to a sword with gilt blade and enamel hilt, belt, etc., of Punjab work, exhibited by Lord Mayo.

Baroda work.

Another curious use of gold is in the work exhibited by the Guickwar of Baroda. Iron vases and other vessels are ornamented with gold, hammered in, not in the branching, coral-like designs of the Kooft-work, but in discs or masses. The whole is afterwards polished in the lathe. Though less effective than the damascened Kooft-work, it is a method capable of varied and artistic application.

Hydrabad work.

Before leaving the gold and enamel, we must call attention to a piece of Hydrabad manufacture, in silver, gold, and enamel. It takes, unfortunately, the unpoetic form of a *spittoon*.

Madras and other districts.

From Madras we have silver plate after English designs. With these should be noted table plate of excellent form, decorated with repoussé work, from Kutch; and a dish of silver, pierced with borders, and circles intervening of hollow plates, like the bowls of teaspoons, gilt. Curious repoussé silversmiths' work, bowls, etc., are

contributed from Ahmedabad. These are beaten up first in small patterns, and holes are pierced to give effect to the pattern. At first sight the decoration might be mistaken for coarse filigree.

Beder work.

The Beder work of black metal (an amalgam), inlaid with silver and gold, in bold flat patterns, is made by casting the vases. The core is first formed, then a vase of wax is formed round it, and a mould over that. The wax is melted out through holes made on purpose, and leaves a mould for the vase in the space so vacated. When the metal is cold it is chased or roughed out in designs, and the soft silver or gold gently hammered into it. There is a case full of good examples.

Ostrich eggs are contributed from Kutch mounted in silver, and fitted as egg-stands for European breakfast tables

Indian brass work.

One of the most interesting cases in the Indian Court, and one of the most suggestive in the whole Exhibition, is that containing articles in the form of table-plate in brass and tin. It is contributed from Moradabad, Jeypore, and Nagpore. In this manufacture the body of the work is of brass, and pure tin is hammered over it, leaving spaces of the ground as ornament. So white and bright is the polished surface of the tin that the visitor will be inclined to take it for silver of plain manufacture.

Whether this surface and colour will stand—or, indeed, how they will behave under domestic use—remains to be proved. As a matter of decoration, we must try to direct the attention of artists and makers to a most suggestive method. These objects are not made for the first time, but they come to us in a form (that of a substitute for silver plate) well worthy the study of the manufacturer.

Taken as a whole, the metal exhibition in the Indian Court forms a connected and most interesting collection. It contains work representing the earliest metallic traditions with which we are acquainted. It shows the continued manufacture of plate and chain armour, various highly-wrought forms of offensive weapons, and very interesting applications of brass and common metals and alloys. The greatest modern workers in bronze are the Japanese and Chinese, and we do not see their metal work fairly represented. What we do see of Oriental produce, for splendour, simplicity of processes, cheapness, or suggestiveness, or more than one of these qualities combined in the same objects or classes of objects, forms a most instructive and delightful feature in the year's Exhibition.

REPORT ON MISCELLANEOUS ART

In the International Exhibition of 1871.

By W. B. SCOTT, Esq.

In preparing this Report on Miscellaneous Art, even as restricted and defined by Class II., I find some uncertainty as to the extent and limit of the field to be included. It may be that some portion left to this section by other reporters shall be left by me in a similar manner to them, while certain objects suggestive of remark will be found included by both.

In the second place, the term Miscellaneous Art, suggesting a wide variety of productions, united only in relation to beauty and taste, the present reporter finds that his leading observations must be made from the critic's point of view in respect to these qualities; and this not merely because it is the antecedent point of view of the reporter, but because it is the most important, and, in some cases, the only one—as in Oriental works, which do not otherwise concern us, or in gold and silver work, wherein the only possible modification must take place in the form.

Perhaps the most prominent and encouraging feature to be observed in taking a general survey of the high-class productions of the English exhibitors, is the number of methods now resorted to to complete and to cheapen, but mostly to complete, the artistic character and attractions of the various objects. This fact, when we consider that very many of these methods of ornamentation are revivals of old or disused processes, speaks very decidedly for the increase of knowledge among the producers. In some cases, indeed, processes or methods, antiquated by more perfect science or mechanics, have been revived in a somewhat blind way. But even these are beneficial. What is good for the age, or appropriate to the conditions of our industries, takes root, while the merely curious passes no further. It is true that we must do many new things

before the one new thing that is to remain useful and influential can be eliminated; and in applications of art, as in patents, many are tried before one succeeds. There are also processes whose reappearance is not desirable—as walled enamel, or Palissy earthenware—yet whose partial revival has an educational benefit, and whose exercise makes the workman feel elevated in recreating historical and precious things. This result has doubtless taken place in France, where reproductions, for their own sake, have been largely made. Of many earlier arts we in England can now show examples executively equal to those of the former times, especially in those of inlaying and of annealing of colours. There is, however, one early art we do not observe to have been tried again, and this one, so important at the period of the Revival in the 15th century, and still practised in Russia and elsewhere to a small extent, it appears to us might be introduced with good effect by our silversmiths. We allude to Niello, the decoration of a white metal by an incised deposit of a dark metallic body, which becomes actually one with it.

Racing cups.

The beneficial disposal of the large sums of money appropriated to prizes on the race-course is an important question. The still larger amounts that change hands on the occasions of our annual horse-races are the actual rewards for the successes achieved; the trophies which a few years ago were really *cups*, are honorary and commemorative, like public monuments, and ought to be so excellent in their form that their art would protect them from the destruction that so often awaits productions in the precious metals. That this is not the case we know, and that the silversmiths commissioned to prepare them are really anxious to produce admirable works we are certain, yet these groups and vases do not escape the character and fate of mere ornaments. In none of these here collected do we find the entire result worth the cost and talent expended; those combining an ornamental scheme with figures or groups being less perfect than such as confine themselves to an historical incident represented by a group of figures. Where the subject is thus directly rendered, we are bound to look on the silver as on any other work of sculpture; and where the subject is simple, as in the Goodwood Cup for 1870, prepared by Messrs. Garrard, and labelled 2811, we have little fault to find, except that the artist, in disposing of his four deer on their rocky mound, has not united them sufficiently as a whole. But, even in the groups of figures, it is evident that the want of discrimination in the finisher of the silver-casting makes the treatment in the workshop hazardous to the modeller. In this one, for example, we find the ground corroded into a rough green patine, to represent the

grass on which the deer stand. In the next in the Catalogue, the Ascot Cup, by the same makers, the ground is white, like the rest of the piece, but chiselled all over, to imitate turf; the touch, however, is so fine that the result more resembles hair, and passes over the rock surface as well as over the grass. That it should be possible in a work of art, costing many hundred pounds, to destroy the unity of surface so necessary to a high impression in sculpture for any supposed prettiness is discouraging; and that the representation of herbage should be so ill understood in respect to relative size as we find it is in these examples, is remarkable. It is true that the material is so beautiful, and capable of so many conditions, comparatively permanent, that we would hesitate to say one single treatment is the right one. But the artist must deny the outside public any treatment, however popular, injurious to its impression as a work of high art, if he means it to be one. We know how strongly this is felt by the best sculptors, whose art is a school of self-denial; and we shall acknowledge how just it is if we turn to the two vases exhibited by Messrs. Hunt & Roskill, with permission of T. Greenwood, Esq. These are by Antoine Vechte, and are very good in the silversmith's part of the work; round and simple in the treatment, soft in the details, without sharpness on the edges, with scarcely any signs of chasing, the shine of the metal removed by a partial oxidation. In some cups we find this treatment, as in the Queen's Vase, Ascot, 1869, which is the more worthy of remark, as it is made by the same firm as those we allude to above. Racing cups.

The name of Monti, as the artist of some of these productions, confirms the impression that the silversmiths are ready to avail themselves of talent, according to their own standard, wherever they can find it. But in this artist's works there is too much contrivance, too many parts and a building-up of the trophy without architectural propriety. In the Brighton Cup of last year, (2820), sent by Messrs. Hancocks & Co., the base is filled by the waves of the sea, from which five Naïads emerge swimming. Between these rises a monumental centre, on which two sylphs support, with easy hands, two immense nautilus shells, that is to say, nautilus shells quite the size of nature, from which arise two mermaids offering *small* shells to Hygeia who, on her lofty pinnacle, feeds the snake of Esculapius. The details of all this are beautifully worked, the form of the naked figures is fine, though a little hard, and somewhat flattened in the finishing process; but the heterogeneous character of the entire work removes it from the category of Fine Art. The same must be said of the next in order, the Irish International Rifle Trophy, by the same artist and exhibitors. On the black marble base is a frieze of silver, in which

Racing cups.

the rose, thistle, and shamrock are prettily woven, but on quite a smaller scale than that on which they appear among the ornaments above. The central stem here supports a disc on which appears a historical group of three figures and a horse in action. The disc is possibly intended to serve as a dish when the cover with its group is removed. In all the figures on this piece we acknowledge much merit; though we desiderate greater simplicity and insight, higher and better endeavour in inventive design. There is another, however, to which the merit of good modelling and curious workmanship cannot be awarded, in which the beauty of the silver is entirely overlaid, and the whole a misapplication, to be accounted for only by the difficulty of producing continual novelty. It is designed by Mr. H. Emanuel (2827), and is the Doncaster Cup of 1869, now exhibited by R. Jardine, Esq., M.P. This is a wide vessel, like a wine-cooler, entirely gilt, with the handles composed of the thick sticks of the vine, from which, covered with leaves and fruit, come twigs, thrown loosely round the entire vessel. The leaves are enamelled green; bunches of grapes, both purple and green, being represented by precious stones, of large size and moderate value. The whole is thus covered, either enamelled or gilt; nor does the silver avail for any purpose in the modelling which might not be accomplished by any other metal. Even as illusive imitation we do not find this novelty a success. The bloom on the grapes might have been given by a higher polish applied to portions of the surface, to express the spots from which it had been rubbed. Had the imitation been perfect, we might have found a partial gilding of the silver useful by adding colour; as it is the impression is wholly a failure.

Oriental metal work.

In this division we must comprehend much deserving examination, though not necessarily requiring lengthened remark in this place. The goldsmiths' and jewelled productions from India are of especial beauty; minute in an extraordinary degree; examples of elaborate handwork not readily got where skilled labour, as with us, is rare and expensive. Our English jewellers are not extensive exhibitors, nor is it desirable we should compete in some Oriental applications of art: the enamels from Jeypore, for example, where gold itself is completely invested with enamel colours, and encrusted with precious stones, as the cup, saucer, and spoon, exhibited by the Earl of Mayo (numbered 2337). The handle of this cup is set with large diamonds, and the bowl of the spoon is an emerald hollowed out. On the other hand, here are brass and gilt basins and other small vessels, covered with a diaper of ornament, cast for the most part, of perfect beauty. Our furnishings in household life are much more numerous, and our applications of arts and

manufactures much more versatile than in the East, where personal ornaments and armour form the principal subjects for refined decorations. Thus, the silver work, filagree, gilt, chased, or engraved, from Madras, Rangoon, Delhi, and other places; the "Kooftgari" work, iron or steel, inlaid or otherwise ornamented with gold, from the Punjab for the most part; the Bidree work, inlaid with silver, from the Deccan, and elsewhere; are only employed on bracelets, necklaces, shields, sword-hilts, and so on; while the brass from Madras, Benares, and other places, are utensils, goblets, etc., used in worship. In all these, fineness and elaboration, both in design and workmanship, are held in the highest esteem, and secondary qualities of this kind produce good results in small articles of luxury. In these matters the case containing numbers 2986 to 2999 deserves examination. When, however, we find the same microscopic elaboration applied to large objects, furniture made for Europeans, or other articles, there appears no adequate result from the amount of labour. In this Gallery there is a side-board in ebony, Cingalese work (3083), after a European design, that of the exhibitor, Lady Emerson Tennent, so sharp in the carving of the moulding, that none of the other pieces of the same kind done at home are quite equal to it; but this feature is of little value at any distance, and has in itself little merit.

Oriental metal work.

Objects in various metals, as well as the application of brass, etc., to furniture and other things, are numerous and interesting. In church ornaments, the brass of Mr. J. W. Singer and Messrs. Cox & Son, is worthy of mention, as well as the Communion plate of the latter in silver-gilt. The jewelling of these objects is a question of propriety, which may be left to the decision of certain principles in higher matters, but if the chalice is to be distinguished by jewels, it appears to us the corona should not compete with it by means of glass and tinfoil. The pulpit of wrought iron, designed by B. J. Talbert, is an extension in the use of metal of some interest in church building, if it may lead to pulpits becoming moveable; the price of wrought iron with emblems in brass, however, is necessarily greater than wood or stone.

Various metal work.

The designs of Mr. A. Willms, produced by Messrs. Elkington & Co., the vase and dish (2808), silver repoussé, in the Renaissance style; the repoussé tazzas (numbered 2802 and 2846), are all worthy of being classed as works of high art, and show us a foreign name as artist, associated with an English one as producer, a conjunction, we are happy to say, not so frequent as formerly; indeed, it is only in the treatment of silver and steel, in repoussé and in Damascene particularly, that this combination still survives. We find the same names, as designers and manufacturers, attached to

Various metal work.

the steel casket (2806) in which the gold and silver are admirably combined; also (in 2807) *Champlevé* enamel in the Persian style. Our English artists in steel will also acknowledge the excellence of the pieces, by Signor A. Cortellazo (2798), a "Bacile," or deep dish of steel; and (2799) an "Anfora," or ewer of steel, exhibited by Sir W. R. Drake. On the first of these is a bold band of arabesque, surrounding Sir W. Drake's arms in enamel, without which are Sea-gods, Tritons, and Nereids, modelled in silver in high relief. The ewer has a spout in the form of an eagle's head, with handle of entwined figures modelled in silver; the body of the vessel is enriched with medallions inlaid in gold and silver. Altogether, we find this artist exhibits four pieces; the others being (2833) a chalice of steel with a spoon, and a clock-case (numbered 2844), the last especially admirable in all respects. All these objects show singular taste, skill, and artistic feeling, coupled with a masterly manipulation in working out the details.* The trowel (2849), engraved in silver, exhibited by Messrs. Jones & Willis, must not be omitted when speaking of design. The ornamental invention and treatment covering the blade of this comparatively insignificant object is such as to give it importance; the varied colour of the polished surface of metal is judiciously managed.

Metal applied to furniture.

The elaborate engraved brass inlays of Mr. L. Mignienne are excellent both in design and in execution. These are conspicuously represented by the Buhl tables, console, and cabinet (3074—76), where the precision of the work is perfect, and the effect enhanced by the ormolu fittings, which are remarkably well applied. In this

* We have been furnished with some particulars regarding this artist, Antonio Cortelazzo, of Vicenza, who claims to have re-discovered the process of inlaying iron with gold and silver. This is termed by the Italians "gemina," and was known to the goldsmiths and metal-workers of the best period of Italian art. The first essays, made by Cortelazzo, were in the imitation, or rather fabrication, of antique specimens, in which he was so successful that his works were eagerly purchased by dealers, and many of them now hold a high place in collections, as rare and valuable examples of metal-work of the 15th and 16th centuries. Fortunately for his reputation, and for the true interests of art, his abilities as a worker in metal came accidentally under the notice of Mr. Layard, whose well-known interest in the development of art led him at once to represent to Cortelazzo that, apart from the discredit attaching to a fabrication of antiquities, however clever, it was not an occupation on which a man of his genius should waste his time, and urged him to produce original works and avow their authorship. Cortelazzo's reply was that which we fear would be the answer of many clever artists—"Dealers are my only customers, and they require fabrications, not original works." Orders were at once given by Mr. Layard, who interested himself with his friends so effectually, that of late years Cortelazzo has had full employ in producing for amateurs, in Italy and England, works of his own design and bearing his name.

place we must also mention Mr. Wertheimer's grand armoire, and console table, in oxidised silver (numbered 3092). These are in the style of Louis XVI., the table having a marble top; ormolu decorations are added to the very dark oxidised surfaces with great effect, the whole impression being massive and rich. Metal applied to furniture.

Earthenware and porcelain being collected on the other side of the building, except a few vases, etc., dispersed about ornamentally, do not come within the scope of this Report; but Messrs. Wedgwood's superb centre for a dinner table, here exhibited, must not be left unmentioned, and Mr. Minton Campbell's two vases must be noticed in connection with metal. These admirable examples of several combined arts are each made in separate pieces, and these are united by Damascened metal by Senor Zuloaga, of Madrid. This portion of the work is of remarkable artistic beauty: and the bodies of the vases, one being cream colour, the other blue (bleu de Perse), with ornaments, partly in enamel, and partly filled in like the Henri Deux ware, are notable examples of the high state of our potters' art, in which we take the lead of the world, at least as manufacturers. But we confess to having mistaken these vases for enamelled brass, the fishes and other figures that decorate them being surrounded by a gold line like the divisions in the field in *champlevé*. As it is, they put us in mind of the fable of the pots of iron and earth floating together in a proximity, destructive at last to the weaker of the two. It is true there are many exceptional cases wherein good taste and good art also may, as some compensation, conceal the material, but this we cannot accept as one, either of the two materials here combined being adequate to the realisation of the entire vessel in one piece.

Under this heading, which comprehends the ornamentation of furniture, it is not intended to enter into matters that may be touched upon elsewhere; still, a few words seem to be required here, particularly in regard to a species of decoration that appears worthy of some attention in an economic point of view, as well as in that of art. This style of decoration is here called the Xylatechnigraphic process, and is, in fact, staining by hand or stencil, a light-coloured, but not necessarily soft wood, with certain transparent colours: producing a result when polished, similar, though not necessarily deceptively so, to inlaying. This process is, it appears, patented by Messrs. Trollope & Sons. Whatever simplifies the executive, and brings the designer into contact with the object to be decorated, and so unites in his hand the offices of artist and workman is of value and importance. We are quite certain, moreover, that expensive processes in the arts throw the production out of the æsthetic, and into the commercial Wood, carved, inlaid, etc.

Wood, carved, inlaid, etc.

category. The appraisible value becomes that of labour and material—not that of design and beauty. Price, besides, is of fundamental importance in the spread of refinement; and where machinery, luckily, cannot be applied, any simpler and more direct executive means deserve attention. In the Pottery Gallery we find Messrs. Doulton & Watts, of Lambeth, showing jugs, jars, inkstands, salt-cellars, etc., in common clay, good in form, with *incised* ornament of easy execution. And in the stained glass there is a similar innovation exhibited by some windows for the Ceramic Gallery of the South Kensington Museum, where the picture is expressed by the point of the brush on the glass, exactly as it would be by a skilful draftsman on a sheet of paper. The furniture that has led to these remarks is designed by Mr. A. F. Brophy; two pine-wood cabinets and a wardrobe (numbered 3085—86 and 3048). There being no price affixed, we do not know that the decoration is inexpensive, but another specimen of a similar style of work, by Mr. J. Gamble, on a pianoforte made by Messrs. Wornum, is expressly described as "cheap decoration." All these pieces of Xylatechnigraphic work have a superiority over inlaying, besides cheapness; as a line drawn by the hand has a vivacity which is lost in stamping and sinking processes; and even in point of permanence a stain has the advantage of veneer or inlay, as an incised line on pottery has over raised ornament, and a single pane of glass over a leaded complication. The heads on the panels of these cabinets have a strong and good effect.

The remarks we have made on price seem the more necessary, since the major part of the furniture here is exhibited for its elaboration. Polished wood surfaces are in themselves among the most lovely things in nature—higher in organic structure than marble; and wood, in combination with marble, adds an impression of imperishableness to the beauty inherent in the materials. The treatment most in favour is that of inlaying delicately and skilfully. Messrs. Gillow's sideboard, in oak, of mediæval design, with black iron fittings and carved panels in boxwood, is an exception. Much of this inlaying is perfectly well done, as the piano by Messrs. Brinsmead & Sons (3047), in walnut and marquetrie case; and also the suite of wardrobe, toilet-table, and chairs in satin-wood, ornamented with engraved ivory and coloured woods, by Mr. R. Charles, exhibited by Messrs. Walker & Co. (3094). Here the minute portions of colour associated with the ivory seem to impair the impression of purity. These pieces of furniture are, however, superb, and the medallion heads in ivory are noteworthy in point of art. We may draw attention, also, to the ebony and ivory cabinet by Mr. A. Lorimer, shown by Messrs. Jackson & Graham

(numbered 3066). This is one of the completest and best designed pieces under notice, and in it engraving, filled with black like Niello, is largely employed on the ivory. The grotesques round the centres and shields are in the extremest taste of the Renaissance; but the pilasters and other parts are very beautiful. Very good examples of design, ebony without inlays, are (3088) by Messrs. Beavis & Rogers, made by Messrs. Trollope & Sons; and (3058), a cabinet by Mr. R. Jefferson, exhibited by Messrs. Gillow & Co. In style and general impression this is quite superior to the detail sharp as steel-casting, distinguishing the Cingalese carving exhibited by Lady Emerson Tennent. Wood, carved, inlaid, etc.

Of carvings in wood unapplied we find several talented pieces, in the shape of delicate groups of foliage, with birds and other matters, as that by Mr. W. Wallis, called "Autumn;" but these are perishable works which escape being considered sculpture, either round or in relief, having flatness, but no supporting background. Besides these, we have some carvings coming strictly within the definition of high art; the oval frame, for instance, carved with Amorini by V. Besarel (numbered 3056.) Having no more fitting place, we may mention here a small object in ivory—a parasol handle, admirably cut by Mr. T. Norest (3156*).

The Japanese cupboard, covered with pictures and diapers in coloured straw, supported on a red lacquered base, suggests a few words on the plan, originated, we understand, by the late Prince Consort, of exhibiting objects, arranged by class, irrespective of nationalities. This piece of furniture, partly open and partly closed by doors, in the Japanese manner, in its light yellow straw, is here associated with our own furniture already noticed. In the cases are also some Indian ivories, wherein the drawing has evidently received a European emancipation from the unintentionally ludicrous or painful contortions of the native art. In an educational aspect, bringing various peoples and artists in contact by means of their works, is certainly a gain; and placing them in juxtaposition, is only carrying out the principle originating International Exhibitions: but we must not forget that any further application of it, to design or to the works themselves, is very dangerous. As a mixture of styles, chronologically distinct, is injurious to the impression of any ornamental scheme, so the effective qualities of different countries, united in the same design, are destructive of each other. Already we have seen a Japanese influence even in our Fine Art; we have been told shadow is a defect of nature, and a vapid affectation of bright colour and no dark, has resulted. The Japanese cupboard is attractive. The straw covering, within and without, which is fixed by a cement so very adhesive that it escapes Surface decorations.

Surface decorations.

destruction for a long time, produces a variety of effect by changing the direction of the lines of straw; and the instinct of pictorial composition (the balancing of parts and forms on a given surface) which seems to have been developed in the Japanese workman, by inheritance of trade, is conspicuous here in the decoration of the doors of the upper part, as well as on the larger doors below. The small upper doors are spotted with flying storks, two, three, or four on each door; but whichever number is introduced, the entire surface is successfully covered. This is partly done by the direction of the wings and feet, so as to allow no suggestion of blank spaces; and on the two great doors below, which are covered by one picture, a compensation by isolated spots renders the composition not only satisfactory but charming by its variety. In the construction of the shelves there is the same unevenness in shape, but the attempt to unite this with our ornamental schemes (all, except that of Louis Quatorze, architectural, one-half repeating another in reverse) would be hazardous, and we fear that, sooner or later, the Japanese will succumb to our symmetry, when they receive our productions in the admiring spirit we accord to theirs.

Painting on furniture and walls.

Of the very legitimate decoration of furniture by painted portions, sunk for the most part, which began among us only a few years ago, with the revival of taste for the Gothic style, we do not find much in the International; so little mediæval is there, indeed, as to indicate a diminution in our taste for things of the "dark" ages. One of the cabinets already mentioned (3088), carved in ebony, has the medallion heads done in grisaille, executed by a thoroughly artistic hand; and we find very fair painting, judiciously applied, on another similar piece of furniture, in light wood, by Messrs. Collinson & Lock (3053). The same firm exhibits another in ebonised wood, the small panels filled with female figures in white, on dull red grounds. These are very good, indeed, in design; and the paint, which is thickly applied, has a perfectly harmonious effect. We find, also, Wedgwood plaques—white reliefs on light blue grounds—used to fill panels, and to enrich friezes on several pieces of furniture. These relieve the eye, and have an advantage over painting in their unchangeableness and facility in cleaning.

C. Minton Campbell's "permanent fresco."

Since the ancient art of fresco (properly so-called) has been virtually abandoned, and direct wall-painting of all kinds has been found surrounded by infinite difficulties, arising mainly from damp, but also from the corrosive nature of lime, the idea of applying tiles and other earthenware to the entire surface requiring decoration, has been suggested. This has been done in former times, but the warping and

C. Minton Campbell's "permanent fresco."

shrinking of wide plaques of pottery-ware in the furnace, present difficulties to the satisfactory adoption of this otherwise secure means of preserving the artist's labours. Mr. Minton Campbell has taken out a patent for a new adaptation of earthenware to walls, a specimen of which is exhibited. Instead of large square tiles, or pieces cut to the outline forms in the cartoon, as *pot-metal* painted glass windows are done, both of which plans were formerly adopted, the surface whereon to paint is composed of small hexagons, about the size of pellets, in mosaic. These pack close together, form a very even ground, and if the paint is used thickly, it fills up the interstices, so that the finished picture receives little or no damage from the reticulated surface under it. The great advantage is that the shrinking of each pellet is a small matter, and thus the general flatness is preserved. In all cases where this earthenware surface can be applied, and there stands little in the way of its application anywhere, the difficulties hitherto too great to allow of monumental painting being frequently carried out in this country appear to be removed. The picture here shown is a popular figure of a huntsman, in theatrical costume, about four feet high; on a larger scale, actually applied to its destined purpose, it has yet to be tried.

Glass, etc.

The beauty of the material, and the rarity of old specimens, have made us forget that the major part of the manufacture of Murano was not of a high class as art, but that, in fact, not only the beads, trinkets, and toys, but the cups with bizarre shapes and handles, were for a cheap market. The finest pieces were simple, of clear glass, or that with lines of colour embodied. Mr. Salviati's reproductions are for the most part of the former class, such as his Venetian chandelier; and when we consider the first distinctive beauty of glass, that which it possesses over all other hard substances, is transparency, and the second smoothness, we can scarcely think that the rough surface of semi-opaque enamel laid on by the brush, as in objects numbered 3149, is an improvement. In one of these the enamel is opaque, and covers the entire vessel, except a narrow edge and the nob on the top. Engraving, on the other hand, adds no opacity, but introduces a new condition of the original material; and where the design is good, and the execution ably handled, as in 2850, by Mr. G. A. Rogers, the result is perfect. So it is also in the "Claret Jug," by Messrs. Pellatt & Co. (numbered 3147), engraved in cinque-cento ornament. In the small circular mirror, surrounded by a coloured flower-wreath of glass (3173*b*), Mr. T. C. March's patent, the wreath appears dangerously loose. We confess we should like to see it annealed to the plane.

Fans.

The competition for prizes has made this the specialty of the season. The fact of a competition, and the restrictions as to the age of the competitors, take these productions out of my province They will, no doubt, be found particularized elsewhere. Two fans, not, we presume, in the competition, by Zichy, of Petersburg (numbered 2323), deserve mention for their clever drawing and inventive ability.

REPORT

ON

ENGRAVING, LITHOGRAPHY, &c.,

In the International Exhibition of 1871.

By JULIAN MARSHALL, Esq.

Retrospect of engraving.

Any comprehensive view of the subject of engraving must be, to a great extent, retrospective. In the four centuries that have elapsed since this art was invented, or accidentally discovered, it has undergone so many changes, whether in development, improvement, or decadence, that in order to gain a true impression and appreciation of its present condition, we are compelled to trace the principal features of its history, and so observe the causes which have led to the results which strike us in examining the most recent examples—such as those which we find gathered together in the present International Exhibition of 1871. It is, of course, not necessary to follow out minutely, however interesting such a study would be, each phase of the art: that would lead us far beyond the limits of our space and the scope of the present Report. It will be enough if we note down briefly, but as clearly as may be, the chief incidents which have occurred since the date of the first print, about A.D. 1450, and mark the various epochs which we shall find to have been determined by those events.

Early wood cuts "block books."

In almost all the histories of the "Art of Engraving on Copper," much notice has been usually taken of wood engraving as its natural and immediate precursor, particularly that species used in the decoration of works produced before the invention of moveable types which, containing text illustrated with figures engraved on the same wooden blocks, are commonly called Block Books. This form of book and illustration is of very ancient origin, and seems to have been common to most civilised nations. The Chinese have used it for many, it is difficult to say how many,

Early wood cuts: "block books."

centuries. The oldest European examples are generally German. The style of art which was practised by these engravers on wood was extremely simple. The designs from which they worked were little more than outlines: the engraved blocks furnished the lineaments of the figures, and the illuminist supplied the rest. By degrees a few light hatchings were introduced, thinly scattered upon the folds of the draperies and other parts of the figures; and occasionally, where the artist wished to give a deep shadow, the block was left untouched, that it might print black in such places, and thereby diminish the task of the colourist.

Niello work.

The practice of ornamenting vases, boxes, trinkets, and other objects, composed of metals, generally precious, with engraved lines in the form of patterns or figures, is of the highest antiquity, having been practised by the Egyptians, Greeks, and Romans. At a much later period this art gave rise to works in Niello, which are engravings on plates of silver or other metal, the hollows of which, formed by the instrument tracing the design, were afterwards filled with a black composition, called by the Italians "Niello," from the Latin word "Nigellum." This composition was poured into the lines, where it hardened rapidly; the superfluous parts were then polished off the plate, which now showed the design in clear contrast from the black lines standing out well marked upon the burnished and even surface.

Impressions from engraved plates: Maso Finiguerra and his contemporaries

From one of these plates, before it was thus treated, or in the process of treatment, either accidentally or by design, an impression was taken on a piece of paper, or perhaps a linen rag, with which the plate was wiped. We have no exact account of this—the birth of the art of engraving as we understand it—and much is therefore left to conjecture. It is pretty certain, however, that it was invented in Italy about the year 1452. Maso Finiguerra is the illustrious name of the first great artist of whom we have any record. He was a native of Florence, and worked in silver and gold, making many plates called *paxes* which were displayed in the churches, to be kissed by worshippers. From some of these there are impressions in existence on paper and in sulphur, for that substance, which lent itself readily to the purpose, was also, at that time, used in taking proofs, probably to enable the engraver to judge of the effect of his work before it was filled with the *niello*, which would make any alteration impossible. There are also in existence many other prints from plates executed in a similar manner, and representing subjects of all kinds, both sacred and secular, as well as ornamental designs; and, as several of these have inscriptions which read from left to right, it is evident that the

plates were engraved for the purpose of printing these impressions, for otherwise the lettering would have been reversed in the printing. These plates, in which we see the first effort of the newly-born art, are mostly of a small size. This was natural for two reasons. Firstly, the men who worked in this manner were, generally speaking, goldsmiths, and therefore accustomed to fine and delicate tools and laborious execution bestowed upon small and costly objects. They were thus not prepared at once to begin upon a broader, freer, and larger style than that in which they had been brought up and educated. But, secondly and principally, they had no means then in use for printing larger plates. They seem to have been content to rub or press the moistened paper upon the face of the plate, whereby they secured a fine and rich impression, but not one which was by any means always regular or uniform.

Impressions from engraved plates: Maso Finiguerra and his contemporaries.

Upon the footsteps of these distinguished artists followed very soon many others in Italy and in Germany, and the art became more commonly practised. Woodcuts had already been long popular, and in the possession of the poorest as well as of those who had the means of buying more costly works. Engravings soon were known equally well, and supplied the cottager with the designs of sacred or secular art, which had hitherto been seen only in the collections of the most wealthy merchants or nobles. The thoughts and inventions of great painters, transcribed by the industrious engraver, or roughly impressed at first hand on the copper by the artist himself, were now to be met with in every town and village, and became familiar to every eye. Many hundreds of prints were sold in this manner throughout Germany, Italy, Holland, and France for trifling prices, only one of which would now-a-days fetch hundreds of pounds if offered for sale. Had they been kept as curiosities in the cabinets of the rich, they would have been more plentiful now; they were not, however, esteemed in that way, but were the source of amusement and unconscious self-instruction to the uneducated classes, and especially to children.

Progress of the art.

Nothing, perhaps, ever conduced so much to the spread of art, art-knowledge, and art-culture, as the diffusion of these beautiful works, justly prized by the amateur of to-day, not only for their variety and interest in a historical point of view, but equally, if indeed not more highly, for their intrinsic value and loveliness. One of our most distinguished connoisseurs has said very truly: "It has been too much the custom in this country to consider engraving more with reference to its mechanical utility than in regard to its higher qualities, as it has been chiefly encouraged in the decoration of books, and the illustration of scientific and

Art value of early engravings.

Art value of early engravings.

mechanical treatises. By those, however, who have taken an interest in its progress and perfection, its importance as a rich intellectual gratification must be fully estimated, since it enables us to form an intimate acquaintance with the noblest works of art through the medium of their translation by the graver, and to possess ourselves of the productions of those eminent masters who have exercised the etching needle as well as the pencil." These words will supply us with a very good criterion for examining and judging the recent examples which are now before us, by prompting us to inquire how and how far their authors have devoted all their best energies and talents to the rendering of the painter's meaning, and the translation of his colours in simple black and white, without seeking to display their own mechanical dexterity at the expense of their models, and to criticise at the same time the few original etchings which are contributed by artists who have themselves been the authors of their designs.

Followers of Finiguerra.

Of the engravers who followed immediately after Finiguerra and his contemporaries, the most famous were Baccio Baldini, Sandro Botticelli, Pollajuolo, Andrea Mantegna, and Giacomo Francia, whose names are illustrious in the sister art of painting. Lionardo da Vinci is also said to have engraved one plate, if not more. There is no room for wonder that works executed by artists such as these should be full of beauties of taste, feeling, and purity of design. The same may be said of the engraving of Martin

A.D. 1515.

Schongauer, the greatest of the early German masters who practised the art. His plates are marked with an exquisite sweetness, which might well be studied by a modern student of expression. Closely following, come three great names, Lucas of Leyden, the most eminent of the early artists of his country; Marc Antonio Raimondi, who worked under the eye of Raffaelle himself, and did justice to his instruction; and Albert Durer, the son of a goldsmith, and himself a famous painter, a sculptor, an architect, a mathematician, and one of the greatest engravers who have yet been seen. Nothing, to the present day, has ever surpassed the accuracy, finish, and facility of this artist's works. It is needless to say that his plates are from his own designs, as are those of nearly all the greatest men who have ever adopted this style of art. It is only natural that this should be so, as we must admit, if we only consider how much easier it must be for the designer to write down his own idea on the medium from which we are to read it than for another to seek to translate it to us from a painting or a drawing of the master.

The later engravers: A.D. 1630—1800.

New Schools soon arose in France, as well as in the countries which had given birth to the artists whom we have named; but

more and more seldom were they themselves the composers of their subjects. The mechanical part of the art they developed and carried to an almost inimitable pitch of excellence—giving us delicacy, fine finish, and an admirable arrangement of lines which served to render intelligible all kinds of surfaces and textures—gold, silver, crystal, flesh, fur, lace, silk, and satin, with equal fidelity. Unfortunately, however, with this great fidelity to material features, they did not always preserve equally well the spirit, the soul of the composition, which is infinitely more subtle and hard to catch. Edelinck, Nanteuil, Drevet, the Poillys, Bervic, Desnoyers, Bartolozzi, Volpato, R. Morghen, Longhi, and Müller, have left nothing to be desired in point of execution and finish: but they are occasionally deficient in the higher qualities to which we have alluded.

The later engravers: A.D. 1630—1800.

This rough sketch brings our retrospect of line engraving down to the present day. Unmixed with other styles, it is scarcely practised any longer. Engravers have adopted a mixed manner, which enables them to enlarge their scope and express more fully a large variety of styles that they could not have attempted with the simple line. In order to understand the origin of this change we must again look back to the history of the art.

The greatest innovation, after the first invention of engraving, was undoubtedly the discovery of etching. In engraving, the artist ploughs in the metal with the point of a triangular tool a line which is cut clean and firm like a furrow, the thread of metal which is upturned by this action being removed at the same time. After the plate has been covered with ink, that ink which lies on the surface is wiped off, but that which lies in the line escapes the abrasion, and reproduces itself on the paper which is pressed upon it in printing. In etching, on the contrary, the plate is covered at first with a varnish, upon which the artist draws his design with a strong-pointed tool, called a needle; and so lays bare the plate in each line, dot, or scratch, to the action of an acid which he next applies. This is allowed to remain upon the plate just long enough to bite the surface to a moderate depth, wherever the needle has removed the varnish. It will be readily conceived how much greater facility is thus offered to a draughtsman, who would himself express his intention on the plate, than in the slower and more mechanical process of line-engraving. With the *dry-point*, as it is called, *i.e.* the needle alone without the aid of acid, he can add work to his plate when the work of the acid has been accomplished. In so doing, he raises fur or rough edge upon his lines, which must be removed by means of a burnishing tool, or it would hold too much ink and blot the impression. If left to a moderate extent, however, this

Etching: the process as compared with engraving.

Etching: the process as compared with engraving.

rough edge produces a rich and velvety effect, which is commonly called *burr*, and which adds, when judiciously used, very greatly to the "colour" and richness of an etching. It is, of course, possible to execute a plate entirely with the dry-point, as has been occasionally done, if the artist wishes to produce a peculiar impression upon the eye. We have no means of knowing now to whom we are indebted for the discovery of this valuable branch of art. The honour has been disputed very warmly between Italy and Germany, and the merit of its invention has been ascribed at different times to various artists. There are some few early prints which may have been roughly executed in a manner which approached that of etching, but this even is doubtful.

Early etchers. A.D. 1525.

The first prints of any importance in this style are by A. Durer in Germany, and by Parmigiano in Italy. The former does not appear to have taken much pleasure in the exercise of this kind of engraving, as the examples by him are few and not important. The latter etched only a few plates, now very rarely to be seen, full of his own taste and graceful treatment.

Italian and German school.

A few other artists followed these in the execution of occasional examples; among the greatest we may name Lodovico, Agostino, and Annibale Carracci, Guido Reni, Spagnoletto, Salvator Rosa, Castiglione, and B. Biscaino, in Italy, in whose etchings we see the same great qualities which are admired in their pictures and drawings. In Germany there were the family of Hopfer, fertile and inventive beyond measure in multifarious and elaborate design; H.-S. Lautensack, Wenceslas Hollar (one of the cleverest and most voluminous of etchers, whose works are eagerly sought for by artists and amateurs); C. W. E. Dietrich, the author of a number of most picturesque and effective prints which are now very uncommon and G. F. Schmidt, who executed both etchings and engravings.

A.D. 1580—1660.

A.D. 1530—1677.

A.D. 1712—1774.

Dutch and Flemish school.

We now arrive at the Dutch and Flemish School, most distinguished of all in the practice of etching. The first great name is that of Van Dyck, who has left us a few of the most beautiful prints in this style which we possess; they are nearly all portraits, and are distinguished by the most delicate finesse and most graceful charm that ever portrait painter threw into his works. Rembrandt, the greatest of all etchers, was born in June, 1606, near Leyden. His works in this style may be compared with his pictures, and certainly show the most masterly and varied use of the means at the etcher's disposal which has ever been displayed In portrait, landscape, and figure composition, he

A.D. 1600—1674.

is equally the object of our wonder and admiration. In every style his dramatic and picturesque power seems equally at home and effective. It is almost impossible to imagine anything surpassing the dignity and beauty of his portraits especially: they are, as etchings, what the portraits of Titian, Valesquez, and his own are as pictures. The student of etching cannot but find in his works all that power of chiaro-oscuro, that *naïveté*, that truth and homeliness, combined with the greatest dramatic force and intenseness of expression, which distinguish everything that was ever done by this great man, and make him a model to be studied in his etchings, as in his other works. There is scarcely a method or device of working on the copper which was not known to him, and practised in the most successful way; hence arise the unfailing variety and appropriateness of the work to the subject which mark his slightest as well as his most highly-finished plates. Too much can scarcely be said to recommend his seemingly unfinished, or only half-finished etchings, to the careful study of the modern practitioner of the art; in these he shows the truest province and capability of the materials which he used, as has often been pointed out before. It is not the finished and elaborate composition which best befits the hand of the etcher; the facility and rapidity which he can command, and the simplicity of his appliances, enable him to catch and fix at once and for ever the momentary and perhaps fleeting look of a landscape or face—the unstudied *pose* or grouping of homely and natural figures. Anything outside these and similar subjects is beyond his power and province, and likely, if not certain, to lead to failure.

Dutch and Flemish school.

Rembrandt was the founder of a great School, called that of the Dutch Etchers, headed by Ferdinand Bol and Jan Livens, his pupils and imitators. The list of his successors is very long, but we may name among the principal artists the great Paul Potter, Karl Dujardyn, Jan le Ducq, A. Van de Velde, Saftleven, Jacob Ruysdael, Ostade, Waterloo, Everdingen, Swanevelt, David Teniers the younger, Breenbergh, Zeeman, Jan Both, N. Berghem, and C. Dusart. These have left us etchings of all kinds of subjects—landscapes, portraits, animals, pastoral and domestic scenes, sea-views, etc., each one more beautiful and worthy of study than another. The legitimate successors of these great artists, and of Claude Lorraine, their great contemporary in France, who executed a few most charming plates, are the members of the schools of French and English etchers which have sprung up in the present century. This movement took its rise in France, and soon found its way to our country, where it has now many followers who practise the art with considerable success.

Rembrandt and his school. A.D. 1611—1680.

A.D. 1700.

Influence of etching on line engraving: the mixed style.

In its turn etching exercised a considerable effect upon the sister art of engraving in line, and was soon adopted as an assistant. By the union of etching and *dry point* with the work of the graver or *burin*, the artist gained a greatly extended power and variety of picturesque effect. One of the first and greatest engravers who

A.D. 1610—1670. tried this combination was Cornelius Visscher, a native of Haarlem. His execution was clear and delicate, and no artist has surpassed him in talent of harmonising the operation of the point with that

A.D. 1640—1703. of the graver. Gerard Audran, born at Lyons, was the chief of a distinguished family, and was remarkable for the same power of combining the different methods, and so obtaining a rich and harmonious tone of colouring. These artists were succeeded by others who practised and developed the process which they had been the first to attempt, and the mixed style of engraving which at present prevails traces its origin to their example. But in this modern style, which, with its exceptional powers of interpreting various effects of texture and colour, has yet some defects, there are two more elements that have to be noticed; these are the use of dots, or *stipple*, and what is termed *mezzo-tint*. The first is of very ancient origin, there being examples of prints as old as the 15th century in that style; but it was never extensively used until the present century, or shortly before, except in conjunction with

A.D. 1642. line or etching. *Mezzo-tint engraving* was the invention of Louis Von Siegen, an officer in the service of the Landgrave of Hesse, and consists in the following operation:—The plate is prepared, or worked all over, in such a manner that an impression from it would be entirely black; the engraver scrapes off portions of the surface where he wishes to place the highest lights, and so on, until he has removed, more or less, all those parts of the composition which he does not wish to appear in black on the print. It is, therefore, the converse of engraving; for the most prominent parts of the finished plate are those which retain the ink, and those which are sunk the deepest are those which hold and transfer the least colour to the paper. By this method, it will be easily seen, great softness and richness are obtained without any decided outlines. Very beautiful effects have been produced in this way, especially

A.D. 1700—1820. by English artists of the 18th century, the chief of whom were J. Smith, McArdell, and Earlom. This style has become so entirely naturalised in England, that it is known generally as either *La manière noire*, or *La manière Anglaise*. Mezzo-tint is now extensively practised, especially in England, and has contributed a great element of variety and colour to line engraving, being constantly mixed with the work of the graver, the point, and stipple.

When we turn from this retrospect to examine the examples of modern work in these various styles in the International Exhibition, the first thing that strikes us is the small number of original engravings from the engravers' own designs. A few etchings are the only exceptions, and scanty as is the display of these, they are most welcome. We are sorry to see some of the best artists in that style unrepresented, and others only showing works which have been already seen on other occasions. It would be a pleasure to see a greater stride since the last Exhibition, and more new prints of good quality produced. Those, however, which have appeared are worthy successors to those which we have seen from the same hands before, and do not show to disadvantage by the side of the earlier productions. F. Slocombe shows some picturesque little etchings of landscape and a study of a head, which are very good, though a little rough and woolly in execution. A. Ditchfield contributes a pretty bit of the Seine, near Paris, in which one sees, perhaps, the influence of the French school: this is no fault. E. Edwards, one of our best etchers, sends two or three striking plates—perhaps a little harsh in contrast of black and white, but picturesque and forcible. We should like to have seen more of his work here. A few specimens are contributed by G. Cruikshank, the best of which is that (3181) which represents "*Fairy Connoisseurs Inspecting Mr. F. Locker's Collection*," a pretty and fanciful composition, which gives us a very high idea of what that collection must be, if it be fair to judge by the great names displayed; but why the fairies should be dressed like the villains in transpontine tragedies, it is somewhat difficult to understand. Mr. Cruikshank's works are so familiar to all amateurs, that it is not necessary to say anything in praise of his boundless fancy and great originality; we can only make exception in such a case as the above-named little print, which is more refined in character than other examples. "Broadstairs" is a pretty and picturesque etching by Mr. H. Cole, the only example of his work in this Exhibition. Six etchings by W. Carpenter—portraits of himself, his father, the late keeper of the prints in the British Museum, M. Josi, his predecessor, Mr. W. Smith, and another—although etched, we believe, many years ago, we still cannot help noticing as charming evidences of taste and artistic feeling; the result apparently of an attentive and loving study of the etchings of Van Dyck: it is a matter of great regret that Mr. Carpenter should not have prosecuted his studies in this line, and given the world many more, and more important plates. Two etchings by J. P. Heseltine, one a sketch of a River-side Path, and the other of a Brick-field, show much talent, though their effect is rather marred by their dingy tone. Three from the hand of P. Priolo, are somewhat scratchy in execution, but yet give considerable promise.

Examples of modern work in Exhibition: etchings.

Examples of modern work in Exhibition: etchings.

From the practised point of Mr. Hamerton, a distinguished writer on this charming art, as well as a successful practitioner, we have a frame of etchings which are not seen for the first time, but of which the public will not yet be tired. Mr. Hamerton understands the scope and province of his needle, and produces very beautiful effects in his little sketches, both by skill in the employment of the tools, and by the manner of printing, which the present selection of plates is most specially intended to display. We expect greater things from this artist than we have yet seen. M. Ballin, the only French contributor whose name is to be found here, sends an etching of the Battle of the Hague; Count G. Rosen, a couple of plates, one of which is very clever and spirited, representing a "*Fray, Scene from the Middle Ages;*" and W. Unger (Saxe-Weimar), a series of etchings, admirable in their way, from the master-pieces in the Gallery of Cassel. That France should be unrepresented here in etching, as well as in line engraving and lithography, is a very great misfortune.

Line engravings exhibited.

Among line engravings, we see very little that is new or striking in any way. We cannot help pausing before one or two plates which are old friends, such as the "Countess of Bedford," by J. H. Robinson, R.A.—an engraving full of tender feeling and delicacy of treatment, if rather full of reflected lights, that give the figure and dress a spotty appearance. Mr. Robinson contributes a few more, but none of very recent date. Mr. Doo's great engraving of the "Raising of Lazarus," commands attention, if only for the admirable and patient study given by the engraver to his picture, which he has done his utmost to reproduce with fidelity: some fault may be found with the result, perhaps, but none with the disinterested love of his art which could prompt a man to devote so many years of his life to one work as this plate required from Mr. Doo. Some excellent examples are sent by Mr. Vernon, who shows the most perfect mastery of the burin, though the eye is occasionally distracted from the subject by mere beauty of line and adroitness of execution. His most pleasing plate is that of the "Novice," which has more delicacy than the larger plate, the "Firstborn," after C. W. Cope, R.A.* Other

* There seems to be every probability that line engraving will soon be one of the lost arts. It is assuredly the duty of every true amateur to do his best to prevent this extinction. At the present moment in this city the whole commerce in this department—which at one time was alone recognised as high art in engraving—is in the hands of one art-publisher, and depends for existence on his liberality and sense of duty to his profession. This is, of course, apart from the limited, though large and increasing, range of the Art Union, whose efforts in this direction deserve all applause and encouragement, lest it, too, may be tempted into cheaper and more popular processes.—ED.

examples of pure line, and of the second, or mixed style, may be seen—by T. O. Barlow, E. P. Brandard, R. Graves, S. S. Smith, A. Wilmore, W. Ridgway, C. H. Jeens, and C. G. Lewis—which deserve commendation. T. Bankel, a Bavarian artist, shows a pretty plate, the "Post Diligence," in which, however, we could wish for a little more colour. Messrs. S. Cousins, and G. Zobel, contribute some good specimens of mezzo-tint. Line engravings exhibited.

Lithography and Chromo-Lithography open a large sphere, upon which the limits of our space will not allow us to enter at any length. The practice of this branch is growing much more general than it has yet been, both in England and on the continent. The examples exhibited here are not numerous, but still they deserve attention: it is to be regretted that there is not a more numerous display of foreign works of this kind, as they have hitherto been, if anything, superior to our own country's productions, and it would have been interesting to compare the different executions of the various schools. We must, however, be content to notice some good prints by Messrs. Whymper, McCulloch, and V. Brooks, Day & Son. Among the works shown by the latter firm are some very good representations of cups of coloured glass, the name of the actual executant of which we should have been glad to have known. A fine Hanap, and other good prints are shown by Messrs. Hanhart, and some original "Christmas Cards," etc., by J. M. Smith. Mr. Lane, an able and experienced lithographer, exhibits again some good work, with which we are familiar. As far as it goes, the exhibition of engravings, etchings, and lithography, is interesting, and gives some promise; but we should have been glad to see more in number, and more recent productions, exhibited by the best engravers.

REPORT ON WOOD ENGRAVINGS

In the International Exhibition of 1871.

By THOS. J. GULLICK, Esq.

Importance of wood-engraving

As a visual educational agency, the art of engraving on wood has become second in importance only to letter-press printing. What hieroglyphics were to the Egyptians, what vase-painting was to the Greeks, what illuminations were in the middle ages, so, or far more, is the wood-engraving to our nineteenth-century civilisation. In the nursery it is wood-cuts that teach the child first to connect words with things; from them the school-boy learns the rudiments of natural history and general knowledge; the man of science and the natural philosopher have recourse to them for explications and examples. Wood-engraving is no less extensively employed for imparting religious instruction, for illustrating the pages of the historian, the traveller, the popular author or poet; and for educating the public taste by diffusing representations of works of fine and industrial art. And what a void in our social system would there not be if we had none of the stirring and momentous events of the day brought pictorially home to us in the illustrated newspapers!—if we had no topic or folly of the hour made food for mirth and genial satire by Mr. Punch and his fellows!

Its capabilities.

To understand why Xylography, as it is sometimes called, has come to be thus widely adopted—in order to estimate the advantages with which it is credited—we shall have to ascertain its capabilities. The inquiry will involve the consideration of some manipulative and technical details; but without such inquiry I cannot hope to remove misconceptions which seem to prevail respecting a mode of engraving but rarely touched upon, still less carefully treated, by art writers; nor can I hope to engage my readers to deduce and apply correct

principles in forming an estimate of the woodcuts now exhibited. Moreover, without an accurate perception both of the strength and weakness of wood-engraving, relatively to cognate branches of art, we shall not readily detect abuses in its practice nor indicate the manner in which it may be rendered still more serviceable.

Distinctions between engraving on wood and on metal.

To begin, then, with the subjectile employed for operating upon. Wood, especially the hard boxwood now used, is dense and tenacious. It will, therefore, bear minute subdivision, and pressure when subdivided. Yet it is so soft, as compared with copper and steel, that it may be very freely incised by metal tools. To these qualities, in great measure, are attributable the grand distinction between wood and copper-plate or steel engraving. The engraver on copper or steel cuts, what on paper are his *darks*, into the surface of the metal with the burin or dry point, or corrodes them into the surface by means of aquafortis; whereas the wood engraver cuts out, what on the paper are his *lights*, leaving lines or spaces of his surface to supply the darks. In printing, the process is correspondingly diametrically opposed. The ink is lodged in the incisions or corrosions of the metal plate and wiped from the surface before printing, whilst the ink is only applied to the surface of a wood-engraving. This latter process being the same as that of letter-press printing, the "block" on which the wood-cut is executed can be wedged up in the chase with types—it may, in fact, be regarded simply as a type, and hence the extensive adoption of the wood-cut in connection with letter-press printed matter. When prepared, the introduction of the wood-cut need not so materially retard the printing as to render it unavailable in the steam-press. The relative rates of speed at which a wood-engraving and letter types can be printed may be stated as follows:—the wood-engraving, by the steam press, from 400 to 2,500 per hour; the letter types, from 500 in an ordinary machine, to 15,000 per hour in a "ten-feeder" steam-engine. On account of the greater time required for printing the engravings than the letter-press, the "outer forme" of an illustrated newspaper containing the wood blocks, is necessarily put to press many hours before the "inner forme," containing letter-press only. In printing from a copper-plate the "burr" or burrow thrown up by the burin (which is so much prized for special effects in etchings), the engraved lines themselves, and the still shallower corrosions, soon become worn away by friction in wiping the plate, so that comparatively few perfect impressions can be taken. In the case of a wood-engraving, however, often better impressions are yielded after the first ten thousand; and I am assured, on the best authority, that upwards of a quarter of a million impressions have been obtained from the wood-cuts in some Christmas numbers of the *Illustrated*

London News, without having recourse to the electrotypes taken before printing, as a provision against accidents. But apart from the vastly greater number of good impressions that a wood-cut will yield, the additional cost of printing it with letter-press is inconsiderable compared with the printing separately, and by a slow process, an equal number of impressions from copper or steel plates. Here, then, we have some of the secrets of the unrivalled practical value of wood engraving.

Practice of wood-engraving

We must now turn our attention to the *modus operandi* of the art. The subject to be engraved is first drawn on the wood in pencil, or for the most part, with Indian ink and Chinese white, laid on in washes and touches with hair pencils, the latter method being in vogue with modern draughtsmen. The labour of the engraver then commences; but the processes of drawing and engraving being thus distinct, they have been usually apportioned to separate persons from the earliest practice of the art. As the diameter of the box-tree is very limited, large blocks are formed by screwing several pieces together. And when such blocks are drawn, the component pieces may be distributed to as many engravers as there are pieces, and touched up when re-united, the time requisite to complete the work being proportionately reduced—often a most important consideration. The surface of the block also admits of being "lowered" previous to engraving, in parts which, to correspond with light passages in the representation, are required to be printed faintly. Other passages requiring depth may be enforced by "overlaying" such passages, thus causing them to receive greater pressure in the printing. It is, however, beyond my province to do more than indicate such resources. The block, if printed from before being engraved, would, of course, yield a mass of black, like the plate prepared for mezzo-tint before scraping. The ground of a wood-cut may, therefore, be conceived as black. Bearing this in mind, it may be inferred, and rightly so, that the facility of expressing shadow is one of the strong points of wood engraving as compared with line engraving on metal, where darks can only be obtained by a toilsome system of "hatching." But, as also large spaces of the wood may be easily "gouged" out, breadth of light is almost equally at command. The maximum effect is consequently precisely that which is most readily attainable, and the logical deduction is, that breadth and vigour of light and shade should distinguish a wood-cut. For this reason Rembrandt's etchings and pictures, and the works of those Spanish and other masters remarkable for the vigour of their effect, are recommended for study. These important artistic elements being, as it were, given to begin with, they should not be sacrificed without very

good reason. The wood being, however, as we have said, easily removable from wide spaces, the engraver may, with a few lines supported by a small proportion of darks, produce a sketch or vignette wherein the white of the paper instead of the black of the ink shall greatly predominate.

Different methods: white on black—black on white.

But, as for a more complete representation, the boundaries of the masses of light and shade must be drawn, and as all intermediate forms and tints can only be expressed in lines either understood as black on white, or white on black, the power of lines becomes one of the most important studies for the wood engraver. The early wood engravings, with few exceptions, resemble an ordinary drawing with pencil or pen and ink—that is to say, the subject was represented by black lines left in relief on the block. Thomas Bewick, however, who revived the art in the last century, introduced a different system, by which the subject may be described as being represented by the intaglio white forms and lines (proceeding from dark to light)—as it might be by a white pencil on a black ground—the darks being left, so to speak, to take care of themselves. The same system has been re-applied by some of the engravers of Doré's illustrations. It is contended that this is the more honest method, because no attempt is made to conceal the means by which the effects are produced. The distinction, however, is rather in the attitude of mind we assume, than essential to the art itself; and the farther the two systems are carried, the more nearly they merge into each other. The only theory worthy of consideration is that which in practice will afford the most truthful representation by the most economical means; and either system may appear preferable from this point of view, according to the nature of the subject, the treatment required, or the feeling of the engraver.

Importance of true drawing of outlines.

Forms having to be expressed by lines, the ability to draw well is of prime importance to the engraver as well as to the designer. It is notorious that English artists generally have hitherto been imperfectly trained in drawing. Many English painters, when they have to dispense with colour, betray astonishing weakness; and many of our engravers cannot correct the most obvious faults of draughtsmen. An improvement is perceptible, but artists of all grades in the French and German schools are still our superiors in this respect. The boundary of objects being one of their most essential characteristics, the greatest care should be devoted to the drawing of outlines. It is true there is no outline in nature; yet no other sign or symbol of the contour of objects is available in the simpler forms of wood-engraving. It does not follow, however,

that this arbitrary and conventional sign should present the needless prominence which we find it to hold in many highly-wrought wood-cuts of the present day, wherein the elaboration of effect (which renders the sign less necessary) might be made to incidentally mark the boundaries of forms without obtruding outlines in disproportionate strength.

Limits of the resources of wood-engraving.

It need not be said that the relief of objects, cast-shadows, and textures may be indicated by the direction, character, and combination of lines. But it may be laid down as an indisputable principle for our guidance in estimating the scope of wood-engraving, that precisely in the proportion that the lines are multiplied to express modelling and gradation, so is the wood engraver placed at a disadvantage relatively to the copper-plate engraver. From the granulousness and comparative softness of wood, and from the nature of the cutting process, and mode of printing, the lines of the wood-engraver can never possess the sweetness and precision of those yielded by metal. Consequently, the gradations and flat tints are much inferior in clearness and equality. Compare the most delicately wrought wood-cut among those now exhibited in the "Picture Gallery" of the Albert Hall with any line engraving in the adjoining bay, and the inferiority of the former in these particulars will be instantly apparent. In short, whenever a wood-engraver attempts to give his cut the appearance of a copper or steel plate engraving, he must sacrifice the peculiar advantages of his art, and his work is in effect condemned when regarded merely as a clever imitation. Where a wood-block alone is admissible, the amount of work to be introduced must of course be regulated more or less by the subject and object in view; but in countless instances labour is wasted on modern wood-cuts in the vain attempt to rival engraving on metal. The early masters of the art, on the contrary, generally confined themselves to the simplest means, trusting to the expressiveness of their lines and the effective contrast of their light and shade.

Cross-hatching

The expedient for obtaining softness and richness, by causing lines to intersect or hatch across each other, hence called "cross-hatching," which was introduced about 1486, and subsequently superseded the mode of lightening black by dots called *criblé*, has little to recommend it, though natural and advantageous in copper-plate engraving, from which probably it was borrowed, or rather its appearance simulated. A series of parallel curved lines, on a face for instance, are apt to look hard and stiff unless intersected. But softness is more legitimately obtained by the modern method of cutting lines in intaglio, and therefore white, across the relieved black lines. In ordinary cross-hatching on wood with black lines,

Cross-hatching.

of course the *interstices alone* have to be cut in intaglio. The process merely demands a certain amount of dexterity in using a lozenge-pointed tool. This, with machine-ruled skies and other mechanical contrivances, are much used to allure the ignorant, but no engraver with a soul above that of a workman can take pride in them except as means to a nobler end. No artist-engraver in working from his own drawing would introduce unmeaning cross-hatching merely to display his skill in execution. Bewick only employed cross-hatching in one or two trifling details; a few single lines on black sufficed for him. And the most conclusive proof that Albert Dürer, and other eminent painters, did not engrave their own designs is to be found in the frequent employment of that very cross-hatching which, whilst the easiest mode of expressing a gradation with the pencil, is the most laborious with the graver on wood.

The term "colour" as applied to engraving.

A very arbitrary use of the word "colour" has been made in relation to engraving generally. To the uninitiated, it might appear that the term could only be applied by the engraver to his translation of the *hues* of the painter into *tints* from black to white. But the word has a wider and looser conventional significance in the nomenclature of engravers. It is made to include not only the black-to-white equivalents of local and positive colour, but also of light and shade simply, or chiaroscuro, understood as light and shade modified by colour. A steel or copper-plate engraving is spoken of as containing much "colour" when a varied character is given to the lines, not only to indicate positive colour (by stimulating the eye in a way supposed to be analogous to the effect of the picture), but also when the varied character of the lines merely renders contrasts of light and shade but little, if at all, modified by colour. The strength of wood engraving does not, however, as we have seen, reside in possible varieties of lines and gradations; it, therefore, follows that "colour," in the technical sense, and as relating especially to the local colour of the painter, should be sparingly sought for.

How much may be safely attempted by the wood-engraver.

In estimating the merit of a wood engraving, account must also be taken of the mode of printing for which the cut was executed—whether by the hand-press and soft inking balls, by slow ordinary modes well under control, or by the steam-press with comparatively unmanageable rollers and cylinders. If the former, we may accept more detail and variety of effect; if the latter, we should look for greater simplicity and strength. The nature of the subject, and the object aimed at should moreover be carefully considered. A scientific or other representation designed for study should receive no pictorial "treatment" that could possibly mislead

How much may be safely attempted by the wood-engraver.

or confuse, and in rendering works of art the paramount aim should be to reproduce the composition, the motives, the spirit, the sentiment of the original. In copying sculpture, the contours, anatomical divisions, especially of the head and extremities, and the leading lines of the drapery, are all-important. If these are accurate, there will be little need for elaborate shading. This class of subjects, however, too frequently reveals the imperfect knowledge of "the figure" possessed by English draughtsmen. But the engraver himself should in this case be a good draughtsman, otherwise his ignorance will be very apt to betray itself. In rendering works of architecture and art manufacture, it is similarly the spirit and salient features of the design which the engraver (including, of course, as in many other instances, the draughtsman) should strive to seize. So likewise in translating paintings, let him candidly and loyally confess the inevitable limitations of his means. Let him visit the Print-room of the British Museum, and observe how the great draughtsmen of the German, Italian, and Netherlandish schools, who were besides great painters, understood and practised his art. Like the early draughtsmen, let him concentrate his attention mainly on composition, form, and expression, not on the external decorative qualities of the later schools. Let him thoroughly realise that he is working with the "point," not with the brush—that lines supported by strong darks and lights, not breadths of delicately gradated half-tints, are his forte. In short, the best rendering *of* a picture will have affinity with the finished studies *for* their pictures prepared by the early, not the later, masters. In the present practice of picture-copying too much is constantly attempted. The balance can never be preserved while trying to do justice to every part: the essential features, meanwhile, are lost sight of. For these reasons, painters are rarely satisfied with wood-cuts from their works; whilst a suggestive sketch in little more than outline, but so far faithful, would content them, and be perfectly intelligible to the public. As regards engravings of current events, the examples furnished by our best illustrated newspapers leave little to desire. The rapidity with which they are produced (often two or three days only intervening between the event and its printed representation) prevents their being over-wrought.

"Christmas books," etc.: their demerits.

Illustrations of books, particularly *livres de luxe*, designed merely to be trifled over at the drawing-room table are, on the contrary, frequently laboured to the extreme, and otherwise artistically objectionable. The books which swarm at Christmas time discover an enormous amount of wasted toil and perverted taste. "Got up" solely to catch the eye, these ephemeral productions resort, in

"Christmas books," etc.; their demerits.

their illustrations, to pretty mannerisms, to namby-pamby conventionality, to curiously minute, scratchy, and *pointillé* modes of cutting, in order to titillate the palate of effeminate artistic appetite; and everything in nature is seen through a medium of artificial picturesqueness. A predilection for littleness, prettiness, and artificiality, is widely induced by the diffusion of such productions, and reacting on artists generally, encourages a great deal that is pretty, tricky, and superficial, in other departments of art, especially in our popular water-colour painting—a branch cultivated by many of our draughtsmen and engravers on wood.

Suggestions of more simple style of illustration.

A simpler, and therefore cheaper, mode of wood engraving is earnestly recommended to the consideration of all persons employing the arts of representation. Its advantages are many. In a vast majority of instances the object which is, or should be, aimed at, might be attained with equal or more certainty, yet at a great reduction of time, labour, and expense, and consequently the means of instruction might be indefinitely multiplied. Cheap woodcuts might often serve the essential purpose of steel plates and luxuriously finished wood-engravings, that are so costly as to be only within reach of the wealthy dilettante. You might plant the germs of taste in every school-boy by setting before him clear rudimentary illustrations of famous pictures, statues, examples of architectural and ornamental styles, and the "wonders of art" generally. You might place in the hands of every art workmen specimens of the best designs in his particular branch, and the public at large might be kept more fully informed of the progress of events, science, and art. Such simple illustrations of the spirit and broad features of approved designs, as I should like to see given to workmen, would be far preferable to more detailed or photographic reproductions. They would compel thought, stimulate invention, and check that servile copying of which the result, in lifeless machine-like rigidity, is seen in the ornamental and decorative arts of the day. There will doubtless be a large number of illustrations of the most remarkable works of art and industry in this present Exhibition, and I would suggest that in countless instances half-a-dozen quite adequate memoranda might be substitued for one engraving pretending to pseudo-completeness. Nor is it an unimportant consideration that by accepting simpler styles of representation we should prepare the way for a still larger number of females to find employment as wood-engravers. I trust, however, that these remarks will not be misunderstood. The artist is not required to be a slave to his mere materials or tools; it is a mistake to attempt to impose laws on him; it is dangerous to stigmatise as illegitimate any means he may select; and in some subjects,

as, for instance, complex machinery and organisms, the utmost delicacy of detail is indispensable. I do, nevertheless, submit that since wood engraving supplies one of the most efficient agencies for popular education, everything tending to check or limit its widest application should be resolutely discountenanced. Turning from the theory and practice of the art, I would glance at its very interesting history, for though this is not the place to entangle ourselves in the dusty ivy-growths of archæology, yet, from the history of every art may be culled the ripe fruits of the world's experience. Suggestions of more simple style of illustration.

The taking of impressions, both relieved and intagliate, may be traced to the dawn of history; but the earliest European application of the principle of wood-engraving appears to have been that practised in the 13th and 14th centuries of impressing monograms in raised lines on parchment or paper for the purpose of attesting documents. The next step was probably made in Germany towards the end of the 14th century by the card-makers, who stamped the outlines of the figures of their playing-cards, and afterwards coloured the figures by stencilling. Mr. Ottley believed the art to be of Chinese origin, but—though this is not improbable—the grounds which he gave for his opinion are shown in John Jackson and W. A. Chatto's able "Treatise on Wood Engraving," to be bare assumptions. There are, however, Japanese woodcuts in the collection of Mr. William Russell, which it is thought are probably of a date anterior to the earliest European examples. In these, as in all Japanese designs, the outlines are drawn with a marvellous combination of precision and freedom; the cuts are besides very remarkable on account of being printed (not stencilled) in colours. It is presumed that they are illustrations of a poem, but the characters of the text belong to a language so ancient that it is not known to any linguist in this country. History of the art.

From entries in the town books of Nuremberg it is inferred that the business of the card-maker and that of the wood-engraver proper, called in those books respectively "Kartenmacher" and "Formschneider," were distinct in 1449, and probably earlier. The famous "St. Christopher," in the collection of Earl Spencer, which is the earliest dated woodcut known, bears, indeed, a prior date—that of 1423. This date has been lately disputed; but though the advanced style of the workmanship and the darkness of the ink are difficulties, the date is so clearly rendered that it cannot be called in question, unless (which is not likely) we suppose an error to have been committed by the engraver. The claim of a Venetian origin of the art, which has been set up by Ottley and others, seems to be without foundation. Earliest examples.

The block books.

The next great step was the application of the art to the production of block books, which were printed by means of a rubber or burnisher, applied to the back of the paper so as to cause the ink to be taken from the block in front—a mode of printing which preceded typography with a press. In these block books, words cut together with the design on the block are much more freely used. The most celebrated of these books are the "Apocalypsis sue Historia Sancti Johannis;" the "Historia Virginis ex Cantico Canticorum;" and the "Biblia Pauperum." The last consists of subjects from the Old and New Testament, with explanatory texts, and from the received title—the Bible of the Poor—it has been concluded that this and similar works were produced to serve as a cheap pictorial Bible for the use of the poor. As, however, these books must have been costly, and the texts are printed in Latin, it is extremely improbable that they were produced for the poor and illiterate, and Jackson and Chatto are doubtless correct in their inference that the "Biblia Pauperum" was intended for poor preachers, and that the original full title was "Biblia Pauperum Predicatorum." With the preceding block books has been associated the "Speculum Humanæ Salvationis," but Ottley has established the fact, beyond dispute, that in the first edition of the "Speculum" the text is entirely printed from moveable types by means of a press.

Invention of printing.

This great invention of printing with moveable types, so important in the history of the human race, and concurrently with which was taken the greatest step in the application of wood engraving, is, there can be little doubt in unprejudiced minds, to be ascribed to Gutemburg, who commenced his experiments at Strasburg about 1436. The first book produced by the new invention—the Psalter printed by Faust and Scheffer at Metz in 1457—contains large initial letters, engraved on wood, the ornamental designs of which have never been surpassed. The first book containing wood-cuts printed in the English language, by our own Caxton, was the second edition of his "Game and Playe of Chesse." It bears no date, but is generally supposed to have been printed about 1476.

Albert Durer and other early engravers.

The end of the 15th, and the early part of the 16th century saw a great development of the Art in the works of Albert Dürer and his contemporaries, many of them having been executed for the Emperor Maximilian I., the great patron of wood-engraving. Dürer's principal works are the several series illustrative of the Apocalypse; the History of the Virgin; Christ's

Albert Durer and other early engravers.

Passion; the Little Passion; the Triumphal Arch and Triumphal Car, together with some large single works, including his own portrait. Apart from their profuse wealth of invention, and the skill displayed in their elaborate composition, these works evince a closer study of nature than any previously executed; their drawing and perspective are superior, and the objects are more successfully rounded and relieved from the background. Those on a larger scale are strikingly bold and manly, simple and firm. "Chiaro-oscuro engraving on wood" was about the same time carried to a pitch of excellence which has not since been equalled, by Ugo da Carpi—if he was not, as stated by Vasari, the inventor of the art. Chiaro-oscuros are executed by two or more blocks. On the first the outline and strongest shades are engraved in the ordinary way, and succeeding blocks are prepared for adding sets of tints in imitation of a drawing in India ink, sepia, or any other colour. The publication of Holbein's celebrated "Dance of Death," in 1538, brought wood-engraving to a point at which it may be considered to have culminated. Nothing at once more simple and satisfactory in execution has appeared.

Decline of the art: its revival by Bewick and his successors.

Thenceforward the art declined throughout Europe. In England it came to be employed for little more than chap-book and penny-ballad illustrations till its revival about a century back by Thomas Bewick. To this almost entirely self-taught genius is due the credit of founding the present school of wood engraving. His works evince closer observation of nature in the foliage of his trees and shrubs, and greater fidelity in depicting birds and quadrupeds than those of any of his predecessors. To some other merits of his execution I have already borne testimony. To him succeeded Nesbit, Clennell, Harvey (both designer and engraver), Branstone, John Jackson, the writer on his art, and others, who supply the connecting link with our contemporaries, Thompson, the Williamses, the Landellses, Linton, Mason Jackson (brother of John Jackson), the Brothers Dalziel, the Brothers Thomas, and others to whom I shall have occasion to allude later. Birket Foster has been the Apollo of many of our book-engravers; but the freer, bolder style of that giant among designers on wood, John Gilbert, has had a wider influence. Gustave Doré's teeming, yet scholarly productiveness, has led to the formation at Paris of a school of engravers, some of whom, in aiming at a severer or less conventional style, have discovered certain new resources in the art; whilst, among the Germans, Rethel and Menzel have exemplified some of the best characteristics of the early masters; the former in his "Dance of Death," "Death as the Friend," and "Death the Destroyer;" and the latter in his large portraits.

Influence of photography on wood engraving.

Since the introduction of photography, wood-engravers (again including draughtsmen, as in many other cases) have had recourse to its aid very freely, especially for representing objects of art and industry, contemporary events of an ordered ceremonial description, and—less advantageously—portraits and landscapes. But the practice is beset with dangers unless the inevitable imperfections, as well as the qualities of unapproachable excellence in a photographic reproduction, are thoroughly well understood. The dangers and defects to be guarded against may be briefly stated as follows: 1. The danger of introducing unnecessary details. 2. The obscurity of the shadows. 3. The optical distortion whereby the nearer planes are magnified. 4. The exaggeration of the high-lights by radiation, and the reflective power of smooth textures—causing, for instance, the eyes sometimes to stare vacantly, and the smoother epidermis of the lips to appear blanched. 5. The very serious falsification of colour-values, arising from the disproportionate actinic power of diverse-coloured rays, in consequence of which blue "comes out" nearly white, whilst yellow and red translate nearly into black. This last defect explains the funereal aspect of photographic landscapes, the yellow factor of green appearing almost black. The absence of a selecting power in the camera should also be carefully borne in mind. Photography has had hitherto little chance of being extensively adopted as a substitute for wood engraving. For subjects requiring to be "developed" in the "dark chamber" of an artist's brain, such as illustrations of an author's inventions, rivalry from the camera is obviously out of the question. Even the valuable new invention of Heliotypy, and other processes by which the "positive" photograph may be printed in the ordinary permanent manner—are too cumbrous, too much dependent for success on the "negative" to be extensively adopted.

The graphotype process.

Another competitor against wood-engraving has lately entered the field with promises of wider applicability than photography, under the designation of the graphotype. The principle of the graphotype was discovered by an American wood engraver, Mr. De Witt C. Hitchcock, and examples of it, and of its *modus operandi*, are exhibited by the Graphotype Company. Together with the examples is the following description:—"Prepared chalk is first sifted upon a zinc plate, and afterwards compressed under a plate of polished steel by hydraulic power. A smooth, compact surface of chalk is thus formed, and the drawing is executed upon it by means of ink chemically prepared. The effect of this ink is so to harden the chalk wherever it touches it, that when the sketch is completed the interstices between the lines are easily

removed by a soft brush, leaving the drawing in relief. This being done, the chalk surface is washed with a chemical solution, by which it is rendered as hard as stone. A mould is then taken, from which an electrotype block is obtained ready for printing. The advantages are that engravings *(sic)* may be produced in much shorter time and at much less cost." Another and a great advantage, however, arises, or should arise, from the process being autographic—like etching on metal. The result is the work of the original designer, without the intermediary engraver. There being but one operation of the draughtsman, the engraver is dispensed with. The mechanical process has not yet been sufficiently perfected for its productions to flatter the popular taste, nor can we expect it to be otherwise till further improvements are made, and at least some substitute found for the somewhat rude expedient for removing the chalk from between the lines by brushing. There are other objections. For instance, the drawing being executed in lines, it will, if elaborate, occupy the draughtsman a much longer time than is usually spent by him on wood, seeing that he rapidly procures his general effects by washes laid on with a hair pencil. The graphotype will, therefore, not be regarded with favour by facile designers in great request, who leave much to the skill of the engraver. For every hour some draughtsmen are occupied on a block the engraver may have to spend a week; one stroke of the brush may require a hundred engraved lines to translate. Nevertheless the process is a promising one, and it is already usefully applied for common purposes. Certainly it will be by some autographic method alone that we shall obtain a form of printed representation at once perfectly artistic and economic. In the frame exhibited by the Graphotype Company are samples of the chalk tablet drawn upon, and with the interstices brushed out, a gutta percha mould from the latter, and an electrotype from the mould ready for printing. A "proof" from the electrotype is remarkably sharp, the nature of chalk and the brushing operation being taken into consideration.

The graphotype process.

The principle of Ugo da Carpi's chiaro-oscuros has been extended in recent years to various processes of colour-printing from wood blocks, metal plates, and lithographic stones—blocks, plates, and stones being frequently now pressed into service for the production, by repeated printings, of one subject. In Mr. George Baxter's system of printing in oil colours the ground-work was supplied by an aqua-tint engraving, and the colours were communicated by wood blocks. But this process has been far surpassed in the Italian "Oleographs" (published by Messrs Sampson Low & Co.). So-called "chromo-lithography" has made

Colour printing processes.

Colour printing process.

similar progress in the hands of Messrs. Day & Hanhart, the Germans employed by the Arundel Society, and others. Colour printing owes much also to Messrs. Leighton Bros., whose colour-prints, published in connection with the *Illustrated London News*, have considerable merit, bearing in mind the cheap rate at which they are produced, and the enormous number issued of each subject. About a quarter or a third of the result in these colour-prints is produced by wood blocks.

Examples of wood-engraving in the Exhibition.

It is much to be regretted that contemporary wood-engraving is so slenderly represented in this Exhibition. Of some of its principal phases there are no examples whatever. We cannot compare the styles of the engravings from Mulready with those from Millais. Neither the incomparable Leech nor any of the principal living designers for *Punch* are represented. None of the contributions to the *Cornhill Magazine*, by F. Walker, Millais, Leighton, Du Maurier, and other able draughtsmen are here, and there is only one Doré illustration. The *Art Journal*, which has done so much to diffuse a taste for art by its illustrations, takes a place only through the medium of three small copies from pictures (frame No. 3275) contributed by the engraver. But the most disappointing abstention is that of the *Illustrated London News*. This journal, which probably has done more to extend and develop wood-engraving than all other agencies combined, could have furnished nearly complete materials for a history of wood-engraving during the last quarter of a century. The difficulty of starting such a paper, twenty-five years back, can scarcely now be conceived, and its founder, the late Herbert Ingram, must be regarded as a public benefactor. Indirectly, however, the *Illustrated London News* is not wholly unrepresented. A few engravings are sent (3256 and 3257), which were executed for it by J. Palmer, from designs by himself in one instance, by S. Read (our most picturesque draughtsman of architectural subjects on wood), and from pictures by other artists The cuts (3280 and 3281) by H. Harral, after Turner, have likewise appeared in the same paper. The skilful and amply descriptive contributions of these engravers show the full extent to which execution can be carried, with any assurance of a satisfactory result, on blocks intended for steam printing. The art, as I have said, is imperfectly represented, but, had the collection been ever so extensive, I should not have conceived it my duty to offer lengthy criticism of separate items. The wish of Her Majesty's Commissioners was that this Report should treat the subject of wood engraving from an educational point of view, and in a manner "calculated to enable visitors to judge for themselves of the merits of individual objects." If I have in a measure realised this desire,

Examples of wood-engraving in the Exhibition.

the reader will be at no loss to apply the preceding general remarks. He will find manipulative skill, more or less great, in every example, for the selection they have undergone is a guarantee of merit. He will find astonishing delicacy in numerous instances, and he will also recognise in several examples very considerable artistic knowledge and feeling, particularly in the contributions of the Brothers Dalziel, J. W. and E. Whymper, J. and G. Nicholls, R. Paterson, and G. Pearson. The visitor may, nevertheless, also think with me that too much is generally attempted, and that we are often attracted to the means rather than to the end which should be proposed. I would, however, in conclusion — merely by way of indicating the application of preceding observations — select a few representative examples for additional comment.

Representative examples of foregoing remarks.

In the Bible illustrations, then, by the Dalziels, after the very accurately drawn designs by Poynter (3271), we have, in "Joseph Interpreting Pharaoh's Dream," an instance, as it seems to me, of somewhat exaggerated outlines. On the lighted side of Joseph's figure, where most conspicuous, yet surely least required, these conventional lines are much stronger than the lines which the same cut shows can be executed for interior markings, consequently this side is here and there not detached from the background, although this was the intention. In the cuts by the same accomplished engravers, after F. Leighton (3269), the outlines are even heavier, but they are harmonised by heavy lines throughout, and by strong light and shade. A contrast to this severe manner is afforded in the illustration of "Ivanhoe," designed by John Gilbert, engraved by W. Gorway, wherein reliance is placed on the picturesque suggestiveness of free, flowing, duplicated and re-duplicated lines. A Bible illustration by Doré, engraved by F. J. Kemplen (3282), exemplifies a revived method. Undulating parallel lines are carried horizontally right across the block, and by their thickness or tenuity both forms and effect are expressed. Breadth and a certain pervading luminousness are thus attained; but the attention is drawn by this method to its obviously mechanical nature. In an illustration of "Sir Roger de Coverley," designed by R. W. Macbeth, and engraved by F. Wentworth (3252), there is a disregard of regularity in the shading lines, and of their power of expressing, by a straight or curved direction, a flat or relieved surface, which reminds me of peculiarities in some engravings from designs by Millais and others. With the highest respect for Mr. Millais's inventive and realistic genius, these peculiarities are precisely what might be expected from a painter who had never practised with the point, though in his case doubtless due simply to a contempt for

Representative examples of foregoing remarks.

conventionality. The language of all art, however, is conventional, and to deprive lines of their power of describing forms by their directions is to needlessly sacrifice great part of their value. R. Paterson, of Edinburgh, contributes two series of engravings (3263 and 3264), which are varied and clever—too clever, perhaps—in treatment. One or two cuts closely resemble etchings, and if express copies, are acceptable as such; but, if purposeless imitations, it may be objected that they pervert the special means of one art to imperfectly simulate those of another. The selections from J. W. & E. Whymper's exciting "Scrambles among the Alps" (3266), have a microscopic delicacy which would be thrown away with any but the most careful and costly printing. Their cuts of Herr J. Wolf's drawings (3265) introduce us to an illustrator of animal life (only to be met with through this medium), who, for imaginative conception prompted by knowledge, has no living superior. One would fancy that he must have passed his life among the creatures whose habits and instincts he depicts with such intense dramatic expressiveness. The proprietors of *The Graphic* exhibit two frames of illustrations engraved by W. L. Thomas, which are rendered very effective by masses of black, and being also large in execution, are well adapted for steam-printing. One of the cuts (after a picture by Phillip) has passages heightened with Chinese white, which passages were probably intended to be cleared up and lightened by the graver. But the cuts should not have been exhibited in their present state as a sample of pure engraving. Lastly, there are some noticeable book-cover and other illustrations (3284), designed by J. Leighton, in the old Netherlandish style, dear to Bibliophiles; and, by the same, some "relief etchings" (3284*) which have this in common with wood engravings, that they are surface-printed.

I cannot close my imperfect Report without expressing my strong conviction that the idea inaugurated by Her Majesty's Commissioners, and now for the first time put in practice, of annually exhibiting the progress of the minor branches of Fine Art—branches allied with education and industry—is one of the most important, and one of the richest in promise of any which have marked recent civilisation.

REPORT ON PHOTOGRAPHY

In the International Exhibition of 1871.

By LIEUTENANT-COLONEL STUART-WORTLEY.

THE display of photography in the International Exhibition of 1871 shows a marked advance on any previous International Exhibition in the two points on which the future status of photography must principally depend. I allude first to the more earnest seeking after art as seen in the treatment of subjects exhibited; and, secondly, to the extreme importance of the improvements shown in the new processes by which permanence will be given to the photographic print, and greater economy and simplicity secured in its production.

Advance in late years.

In connection with the first of these two subjects, I may say that the manipulation of a photographic negative, as far as its chemical and mechanical qualities go, has hardly for some years past been capable of much improvement. Prints were shown in previous International Exhibitions from negatives which in all necessary qualities were as good as any produced in the present day; but the wider range of subjects now attempted, and their more artistic handling, tend to place photography in a far better position as representative of a fine art. I will venture to say that at no previous International Exhibition have photographs of such excellence been seen as, among others, the landscapes and sea views of Messrs. Robinson & Cherrill, of Tunbridge Wells; the landscapes and a composition picture by Mr. Earl, of Worcester; the large portraits of Mr. Slingsby, of Lincoln; the composition pictures of Messrs. Hubbard & Diston; and the art studies of Mrs. Cameron and the Honourable Ronald Leslie Melville.

Photography having now won its way so far as to be classed among fine arts at the series of International Exhibitions, it behoves all who have its interests at heart to endeavour, by intelligent study and appreciation of such works as those I have just called attention

to, so far to improve their own productions as to assist photography in worthily upholding the status now accorded to it.

Retouching of inferior negatives.

There is one point to which I may fitly call attention, that while a print from a negative of an artistically-rendered subject, perfectly manipulated, is full of beauty, a print from an inferior negative, which has to depend afterwards upon the copious retouching now becoming so prevalent, not only is deficient in the delicacy that should distinguish a perfect photograph, but in many cases replaces that delicacy with a coarseness and hardness which inflict injury on a subject otherwise well selected and well worked out.

Permanence of photographs.

With regard to the processes by which photographic prints are produced from the negative, almost every collector of photographs has had to deplore the want of permanence shown in the pictures he may have accumulated. Rare, indeed, would be the collection in which large gaps would not be found caused by once beautiful photographs having faded away. This insecurity has been a by-word and a reproach to photography in general, and we must hail with pleasure the introduction of methods of printing to which such reproach shall no longer apply. That in many, I might almost say in the majority, of cases, the fading of a silver photograph is due to carelessness in the manipulation of an imperfectly understood and delicate chemical process, is amply proved by the fact that such fading is not universal; and it is certainly a desirable consummation to obtain a method of printing in which the necessary permanence is secured by the character of the materials used, and is in no way dependent on the manipulations of the photographic printer.

New processes.

In describing the new photographic processes, I shall find it convenient to divide them into two classes—those in which the printing is conducted by every print being taken direct from the negative, and those in which the negative is used to produce a matrix from which the prints are afterwards mechanically obtained.

The carbon process.

In the first of these classes we find the carbon prints exhibited by the Autotype Fine Art Company, and the enamels exhibited by Mr. A. L. Henderson; while in the second class we find the Woodbury-type process, and an entirely new photographic engraving process (of which only one specimen is exhibited) by Mr. Walter Woodbury, the Heliotype process, by Messrs. Edwards and Kidd, and the Dallastype process, by Mr. Dallas. I will commence with a description of the carbon printing, as practised by the Autotype Fine

Art Company and others. The foundation of this process lies in the fact that a solution of gelatine and one of the bichromates is rendered insoluble by the action of light. The practical working of the carbon process is commenced by spreading on a sheet of paper a mixture of gelatine and bichromate of potash or ammonia, together with a sufficiency of a pigment of whatever colour it may be desirable to give to the finished print. This prepared paper—or, as it is now invariably called, tissue—is then printed through an ordinary photographic negative. When removed from the printing frame it is immersed for some seconds in cold water, and placed in intimate contact with a support either of paper, zinc, glass, or such other substance as may be deemed desirable. The tissue and its support being now placed in hot water, those portions of the gelatine which were next to the paper used in the composition of the tissue commence immediately to soften and liberate the no longer required paper, the carbon and gelatine picture itself adhering to the support with which it was placed in contact. Continued washing in warm water now dissolves the gelatine in exact proportion to the amount of light which has acted upon it through the lights and shades of the negative, the shadows of the print being formed by the gelatine now rendered insoluble by the light which has passed through the transparent portions of the negative, and the lights by the washing away of the gelatine which was protected by the denser part of the negative from receiving any light, and consequently from becoming insoluble; and so delicate is the action of light on the prepared gelatine and carbon tissue that the half-tones—those tones, that is to say intermediate, between the lights and shadows of the pictures—are rendered with perfect accuracy. The gelatine print then either remains on the support that was selected for it or is re-transferred to another, on which it is to permanently remain—this difference being that between the single and double transfer processes in carbon. It will be noted how excellent are the results exhibited by the Autotype Fine Art Company, and printed in this manner; and much of this excellence is owing to the labours of Mr. J. W. Swan, of Newcastle, who was the first to render carbon-printing thoroughly practical, and to Mr. J. R. Johnson, of the Autotype Company, whose improvements on and additions to the process of Mr. Swan have enabled it to take its present high standing. Among the productions of this company that will particularly repay attention may be mentioned the frame of copies of drawings by the old masters (No. 3341); a frame of architectural views, printed from the negatives of the late Mr. C. Thurston Thompson (No. 3342), and Nos. 3343, 3359, and 3360—all copies from original oil-paintings.

The carbon process.

The Woodbury-type process.

We will now proceed to the consideration of the Woodbury-type process, the invention of Mr. W. B. Woodbury, who exhibits a series of pictures printed by his method. This process is founded, as was the last, on the property of gelatine, when mixed with a bichromate, to become insoluble under the action of light; and its manipulation is carried on in the following manner:—A mixture of gelatine and bichromate of potash, with the admixture of a small quantity of Indian ink, is prepared in the form of a thin sheet, and when dry is exposed to the action of light through a negative. It is then taken from the negative and attached to a plate of glass by means of a coating of India-rubber. This is placed in warm water until the solution of the gelatine, in all parts where the light has not acted, is complete. When dry the gelatine sheet is removed from the glass, and the image is seen upon it in relief, the shadows being the thickest and the lights the most attenuated. A printing block is now obtained from this gelatine-relief by placing it in perfect contact with a soft metal plate. The two plates in contact are then placed in a hydraulic press, under powerful pressure, and the details of the gelatine-relief are thus impressed into the metal. It is a remarkable thing that the gelatine film is in no way affected by this great pressure, and may be again used to impress other metal plates. The metal plate which is to serve as the matrix for future printing operations is, when slightly oiled, placed in a small printing press, some ink composed of water-colour ground up in gelatine is poured on its centre, a piece of paper is laid on this, the press closed, and when, after the lapse of about a minute, the press is again opened, the ink will be found to have set, and the print ready to be removed from the press. The prints are then soaked in a solution of alum, in order to render the gelatine completely insoluble, and are then dried and mounted as ordinary prints. It will be noted that the principle involved in this process is that the coloured ink which is poured upon the matrix, and afterwards forcibly squeezed between it and the paper, remains in large quantity in the depressions of the mould, thus constituting the shadows of the print, while the high lights, being in strong relief on the matrix, remain almost free from any of the gelatinous ink.

The specimens exhibited will repay a most attentive examination, and I have little doubt but that this process will be largely used in future photographic operations.

New engraving process.

One example of a new engraving process (No. 3351) is also exhibited by Mr. Woodbury. In this process an artificial grain is introduced into the relief, which forms an ink-holding ground, this grain being transferred to metal by the same means as before mentioned; from the soft metal used to obtain the grain from the

relief an electrotype impression is taken, which, being steel-surfaced, will allow the taking off of a very large number of impressions from one plate. The subject exhibited as being printed by this new process appears to be full of promise.

The heliotype process.

The next subject I refer to is the heliotype process of Mr. Ernest Edwards, the results of which are exhibited in a considerable number of frames. In this process, while the action of light on bichromated gelatine is still an important feature, a small quantity of chrome alum is added to the mixture, in order to give the gelatine film that consistency which, in this process, it requires, as it is from the gelatine film direct that the prints are taken in heliotype.

The surface of a glass plate having been slightly rubbed over with wax, the gelatine mixture is poured over it in such quantity as to form a film of tolerable thickness; when dry, the wax that was on the glass plate permits the film to be easily detached, and it is then exposed to light through a photographic negative. Removed from the negative, the next step is to attach it to the support on which it is to remain while prints are taken from it. This support consists of a metal plate, and perfect junction between the two is obtained under water. The plate bearing the film is then soaked in water to remove the superfluous bichromate, so that light may have no further effect on it, and the film supported on the metal plate is then ready for the printing press. In the heliotype process neither the scraping pressure of a lithographic press, nor the rolling pressure of a copper-plate press is found to answer; and simple vertical pressure, such as is obtained in an ordinary Albion printing press, is the means Mr. Edwards uses for the production of his prints. The plate, on which a paper is laid, is inked by means of an inking roller, and pressure then transfers the ink to the paper. But in doing this Mr. Ernest Edwards has succeeded in overcoming the difficulties which are caused by the use of ink of one thickness only. If a stiff ink only is used to produce these prints it will adhere only to the deepest shadows, while if a thin ink is used, it will do justice to the half tones and lights of the print, but the darker shadows will be weak and devoid of force. Mr. Edwards, then, to overcome this, uses inks of various thicknesses, and having first used a stiff ink for the shadows, re-inks the plate with a thinner ink, in order that the lights and half tones may be properly rendered. As these inks may be of varying shades of colour, it will be readily understood the power which Mr. Edwards obtains by this method of inking his plate. Many excellent specimens of this process are exhibited by Messrs. Edwards & Kidd, and a close examination of their various

The heliotype process.

works will repay anyone interested in the different processes of mechanical printing.

In the above descriptions of the three processes with which the future of photography appears to be most bound up, I have endeavoured, as far as possible, to give a plain and simple explanation of the means used to obtain the various results, avoiding to the utmost the use of unnecessary technicalities, which would be uninteresting to the public at large. The enamel process, by Mr. Henderson, and the Dallastype, by Mr. J. W. Dallas, are both represented by good results, but in neither of these cases has the process been so widely applied as to render it necessary for me to enter into the details of manipulation.

Novelties among foreign photographs.

Of novelties in photographic printing in the foreign department I only notice two—the specimens of Maes, of Belgium, entitled Phototype, and the process of Captain Hannot, of the same country, entitled Heliogravure. No description has been published, and the results appear to be inferior to processes of an analogous nature shown by English exhibitors, and which I have described above.

In order to guide the visitor to the Exhibition to such photographs as will most worthily repay examination, I will briefly call attention to the most remarkable of the works exhibited.

Pictures most worthy of notice.

Following the order of the Catalogue, I notice first some delicate paintings on porcelain by Mr. A. Debenham; while Captain Paget and Lieut. Abney show some interiors of the Chateau de Pau, in which the difficulties of photographing such subjects have been well got over. Mr. Diston exhibits some good combination photographs, and he bids fair to take a high position in this special line. Mr. Streliszky, a Hungarian exhibitor, shows a good frame of studies, entitled chromo-photographs; and some of Mr. Disderi's coloured photographs are also worthy of notice. J. Borsos, Gondy & Egey, and J. Schrecker, all foreign exhibitors, show good work; and Captain Lyon's Indian photographs are of great interest.

Mr. J. Hubbard displays three art studies, entitled respectively "Preparing for Dinner," "Pensive Thoughts," and "The Toilette." This exhibitor is well known for excellent work in this special line. The artistic choice of subject, and care with which the details of the composition are carried out, render these pictures among the most attractive in the Exhibition. Mr. F. C. Earl exhibits some noticeable work; and his composition picture "In Memoriam," and his large landscape of Ledr Valley, are among the best works in the present Exhibition. Mr. R. Slingsby shows some remarkably fine large portraits, and I call attention to No. 3538, by this artist, as

the finest photographic portrait in this department. The pictures of Messrs. Robinson & Cherrill are so excellent as to hardly require any eulogy at my hands, but I must call attention to the perfect manner in which breaking and broken water is depicted in many of their pictures, and to the great value the study of such subjects ought to be to artists. Pictures most worthy of notice.

Mr. Rejlander shows humour in an effective photograph entitled "A Sweep and his Wife;" and the six pictures by Mr. Valentine Blanchard, are specimens of good photographic manipulation. Mr. R. Faulkener shows some frames of instantaneous portraits of children, which are among the prettiest photographs exhibited. Mr. W. Brooks's photographs are of good quality; and three pictures by Mr. B. Greene are remarkable for well-chosen subject and good manipulation.

Mr. A. L. Henderson's enamel photographs are excellent, and their undoubted durability imparts to them great value.

The London Stereoscopic Company exhibit three very good frames of portraits; and Messrs. Hennah & Kent's three portraits are noticeable for good work. Mrs. Cameron exhibits nine pictures, and the artistic handling of the subjects she has selected is remarkable; and the Hon. Roland Leslie Melville's art studies in a somewhat similar style will attract universal attention. Mrs. Cowper shows some excellent reproductions of pictures; and Mr. Wm. England's three frames of views in Switzerland, Savoy, and Italy, are the perfection of landscape photography.

Herr Löwy and Herr Rabending, both Austrian exhibitors, show various portrait studies of great excellence; and F. Lenckhart, of the same country, has some good pictures entitled photographs of costumes.

An interesting collection of photographs has been sent from the Madras School of Arts, and various other Indian photographs are exhibited which will repay examination. I must call attention to the beautiful coloured photographs exhibited by Messrs. Lock & Whitfield, which are hung in the passage at the south end of the Exhibition building.

In conclusion, while I may say that the collection of photographs is an excellent one, I trust in future years that more novelty will be shown in the various works sent in for exhibition, and the public be thereby led to feel increased interest in the display.

REPORT ON ARCHITECTURAL DESIGNS

In the International Exhibition of 1871.

By T. ROGER SMITH, Esq.

Painting and sculpture more appropriate for exhibition than architecture.

ARCHITECTURAL designs embodied, as is customary in England in perspective views of a pictorial character, are always seen to comparative disadvantage in an exhibition. In a collection of gallery or cabinet paintings the actual works of art are themselves shown, and if they are only well hung and well lighted, every quality which the artist has been able to impart to them can be appreciated by the spectator. It is the same with such sculpture as is usually sent to exhibitions, for even when it is a cast which is exhibited and not the finished statue, we still see a work which displays composition and modelling perfectly, and which has received the touch of the artist's hand. But the object of architecture is to design and erect buildings. Buildings are the works of art which an architect produces, and it being impossible for a building itself to be exhibited in a gallery, we have to be content with some representation of it, which often falls far short of doing justice to the original.

Nature and value of an exhibition of architecture.

A perspective view of an architectural design, or of an executed building, bears only so much relation to the actual work of art as a pencil sketch or an engraving would to a statue of which it is a representation, and no more. It is not the building itself; it is only in a limited sense the architect's design for it. It is really no more than a representation, more or less faithful, of the architectural work as it might be expected to look from a single point of view. Still, when the draughtsman has been skilful and the colourist happy (for it is but rarely that an architect has the leisure to execute such drawings with his own hand, even when he has the requisite command of the pencil and the brush), these perspective views have the merit of giving, in an approximate way,

Nature and value of an exhibition of architecture.

a fairly good idea of those effects of outline, mass, colour, light, and shade, which the building will possess; and it has become, in consequence, habitual for the work of English architects to be exhibited in this manner. Continental architects usually prefer to show their buildings by geometrical elevations and plans. These drawings have the advantage that as far as they go they represent the design far more correctly than perspective views. They are necessary to the maturing of the design, and are the means made use of for its execution; but being conventional drawings, they are always more difficult for an untrained eye to understand, and they seldom give so popular or striking a representation of a design as views in perspective afford.

The masses and grouping of a building are sometimes better shown by models, when they are good, than by drawings, and architecture can often be well exhibited by photographic views; but, as just stated, the real works of art produced by the architect are his buildings themselves, and not designs for buildings or views of them, and, consequently, in this or any similar Exhibition the fine art of architecture cannot, from the nature of things, be represented so completely as painting and sculpture. Still, such an approach to a display of it as the present collection of drawings, possesses notwithstanding a great value for the student of this art.

An exhibition of architectural designs has, moreover, a double claim on public notice; first, it displays to a greater or less extent the position of one of the great branches of fine art; and secondly, it indicates the nature, importance, and variety of the many public and private buildings which are rising upon all sides to bear witness to the wealth, the enterprise, and the civilisation of Europe. From this last point of view, an International Exhibition of architectural designs must possess attractions for the political economist, the historian, and the philosopher, as well as for the artist.

Nature of the present collection of designs.

In the collection of designs exhibited at Kensington in 1871, the international character of the display is less strongly marked than could be wished, though the disturbed condition of Europe will sufficiently account for this. English architectural drawings, indeed, so largely outnumber those of continental nations that the collection is virtually an English Exhibition. Viewed as such, it possesses one remarkable feature, due to the relaxation for this year of the usual Exhibition restrictions. It is to a considerable extent retrospective; and we shall find ourselves able, not only to gain a view of the architecture of the day, but to catch glimpses of the course which it has run for the last quarter of a century. An attempt will

accordingly be made in this Report to furnish the reader with some materials for arriving at an estimate of that course, as well as of the condition of English practice at the present hour. And in the few instances where the Exhibition furnishes the requisite materials, the architecture of other European countries will be compared with that of our own.

This Report not a criticism.

Were architecture an art to which certain admitted laws could be applied with absolute precision, as is the case with logic or grammar, or were there such an uniformity of practice and theory as may be supposed to have existed in the great days of Greece, it might be expected that a Report intended to help the general public to examine and appreciate the drawings exhibited should take the shape of an authoritative criticism. But though there exist fundamental principles which few deny, the views of those entitled to be heard vary so widely and on so many points, that it is out of the question to attempt to base, on what would be called admitted data, a critical examination of the designs exhibited. All that the reporter can attempt to give, is some account of the prominent drawings, etc., divided into groups, and a certain amount of information respecting the most important designs in each group. He is aware that even this cannot be written without its being tinged by his own individual predilections and tastes: but still it has been his endeavour to keep personal views, as far as practicable, in the background, and to report on the designs exhibited with as much impartial fairness as possible.

The architecture of Europe in the past.

For the benefit of those to whom the subject is new, it may be advisable to preface an examination of the architecture of the day by such a hasty statement of the course which the art has run in days gone by, as may at least help to render the technical terms made use of intelligible, and may, perhaps, throw a little light upon its present condition.

All, or nearly all, the forms and features assumed by buildings in Europe for a thousand years after the Christian era are modifications of the manner of building practised by the ancient Romans, that manner having itself been a modification of the style which the Greeks had wrought out for themselves.

The architecture of the Greeks and Romans is commonly known by the general term "Classic," which has also been applied to their literature. The architecture of early Christendom, at least in Western Europe, is distinguished by the broad term Romanesque, a term indicating its Roman origin, and including the well-known Norman architecture of this country. Various influences combined

The architecture of Europe in the past.

about the time of the Crusades, to originate a series of great changes, which by degrees revolutionised almost every feature of European architecture; and the style (or more properly group of styles) which then sprang up, and which lasted from the 12th to the end of the 15th century, received the comprehensive name of "Gothic," but may be more correctly termed "Mediæval." With the 16th century came in that re-action in favour of Greek and Latin literature known as the revival of letters; and it was accompanied by a revival of Roman, but, as it happened, not of Greek, architecture. This revived Roman, known most correctly as "Renaissance," but sometimes termed "Classic" architecture, and not infrequently "Italian," formed the style of Italy, France and England, and other European nations; till in England, at the beginning of the present century, and after a long period of inartistic stagnation, a gallant attempt, which met with but a partial and temporary success, was made to revive and introduce Greek architecture. This attempt was followed by a more successful revival of Gothic architecture, contemporaneous with that change in literary taste of which such works as those of Sir Walter Scott were the pioneers, and which they to a large extent helped to bring about. This later Gothic revival is still in full force, but has not superseded the earlier Renaissance or Roman revival.

The periods thus broadly indicated were themselves, it must be understood, times of constant change; and their limits are not strongly marked by definite hard and fast boundary lines, but are nothing else than epochs of more rapid transition. At those epochs the incoming and outgoing sets of ideas are to be seen struggling for possession in men's minds, and the result is what is termed a "transitional" style of architecture. Nothing, in fact, seems more clear than that architectural style is customarily, if not inevitably, a constantly changing thing; nor is this to be regretted so long as good taste, learning, and skill obtain among the artists who design and execute the monuments of a country.

The names of but few of the mediæval (Gothic) architects have come down to us. The Renaissance architects whose genius most influenced English practice were Inigo Jones and Wren, and among their followers Hawksmore and Sir William Chambers may be mentioned. With the Greek revival (to which it must not be forgotten we owe some splendid works of art, the chief of which is St. George's Hall, at Liverpool), are associated among others the names of Cockerell and Elmes.

The Gothic revival owes a large share of its vitality and success to men still living; but its early impulse was unquestionably mainly given to it by the energy, genius, and industry of Pugin, and the refined taste and indomitable spirit of Barry.

The modern architecture of Europe.

It is not possible, within the brief limits of this Report, to trace the course of modern architecture on the continent of Europe. Suffice it to say, that Renaissance art has flourished more or less in every European country; but that English practice has been influenced chiefly by the developments of this style in Italy and in France. In Italy the Classic revival was carried out with much purity of taste and refinement of detail; and for long the Italian models were so uniformly followed in England, that by many persons modern revived Classic architecture is always termed Italian. In France more variety has been introduced into the practice of this phase of art, and many features visible in the designs which make up the present Exhibition are drawn directly from French sources. France, like ourselves, has had a Greek and a Gothic revival within the present century; but, as might have been expected, differences of climate, race, and training have caused Greek art to take a stronger hold there than Gothic. The most compact, well-defined, and altogether powerful architectural school of the present day is that French school whose style, resulting from a fusion of revived Roman with revived Greek, was displayed in all the buildings of the later years of the reign of Napoleon III. To this style the term of *néo-grec* has been sometimes applied.

The present position of architectural art in England does not exhibit much of that compact uniformity of practice which we term a school of art; nor can our architects be fairly said to be at the present moment distinctly divided into two sections, the one practising revived Classic and the other revived Gothic, as a very few years ago they professed to be. Perhaps a fair statement of the actual position of English architecture would be that at the present day revived Greek is abandoned, but that Renaissance is largely practised;—that in the most carefully wrought out works in this style, Italian precedents are no longer exclusively followed, for of late years our Renaissance has been largely tinctured by features borrowed from France;—that Elizabethan and other forms of transitional art have been pretty freely employed in domestic work;—but that the most important and most energetic and living architecture of the present day has been and still is Gothic. In the practice of Gothic architecture there has been a gradual but a strongly marked inclination to go further back in point of time, and wider a-field in point of locality in the selection of models to follow; so that, while a building designed by Pugin would have been pretty sure to be in the style of the 15th or 14th century, and to have been entirely English in every feature and detail, the same work, if undertaken now by an eminent artist of the same class, would be in the style of the 13th or 12th century, and its features would probably be of French rather than English origin.

The possible future architecture of Europe.

All this is not living Art; and though the advocates of Gothic may taunt those of classic Renaissance with the want of vitality in their art, most of the Gothic of the day is itself but a vigorous revival of a past style. A strong desire has been naturally felt for something which shall have more of life and growth about it than belongs to the archæological resurrection of one style after another; and it will be not the least interesting feature of the present Exhibition if we can find that it affords indications of a possible future for English 19th century architecture. Now that the elements of architectural art have been well mastered, it seems as though the rise of new wants, such as those originated by railway communication; the introduction of new materials, such as iron and glass, and the revival of disused adjuncts, such as terra-cotta and mosaic, may yet combine, if under good artistic guidance, to render possible the creation of a new, and perhaps a noble, style. If this dream is ever realised, it seems as though some fusion of the peculiarities of Gothic and Classic must form its basis. Twice already, in the history of the art, these have blended; once during the long Romanesque period when the art of the Roman was by slow changes passing into that of the Goth. Again, and in a different way, this happened in the brief but brilliant time when the revived Classic was struggling with the exhausted Gothic; and the styles named after Francis I. in France, and Elizabeth in England, were the outgrowth of this combination. Gothic and Classic are once more to be found side by side in modern practice. Is it too much to believe that a fusion may again take place, now that a Gothic revival has gone back almost to that point where it touches its round-arched original? The present Exhibition displays one or two designs of importance in which the detail of Gothic is associated with that regular disposition of masses and those bold semi-circular headed openings which seem to have a strong hold upon modern European taste. In this, if in any direction, there seems a hope of a living future architecture.

Meantime our search after novelty has been restless and incessant, and has sometimes led to the introduction into one and the same design of features drawn from the art of various countries, climates, and epochs—a practice which makes great demands upon the skill of the artist who undertakes to harmonise such discordant materials. At other times novelty has been sought for in the introduction of features suggested by individual genius, or not unfrequently by caprice and irresolution. Happily, it has also occurred that our architects have striven—and often with success, as many of these exhibited designs will show—to combine with old forms novel features and modes of treatment growing healthily and naturally out of the materials and circumstances of the day.

GREAT BRITAIN.

How far the Exhibition is a fairly representative one.

The English designs include specimens of most of the architectural styles above referred to as in current use. The Exhibition also comprehends examples of most of the groups into which architectural works may be divided, and so far it may be looked upon as fairly representative; yet in one particular it is far from reflecting the position of architecture in this country. Church architecture is and has been so active, and Gothic art has been so uniformly adopted by the ecclesiastical architects of the day, that the entire absence of certain architects and the comparatively small number of the church and cathedral designs exhibited are somewhat misleading. And even among secular works it is to be doubted whether the large proportion of Renaissance designs exhibited may not serve to convey an idea that Classical art is more generally preferred to Gothic than an observant tourist, visiting all our great towns, would find to be the case. This impression is strengthened by the fact that in one or two instances a public building which has been the subject of competition is represented only by some of the unsuccessful Renaissance designs, which are only drawings; while the building itself which is actually taking its place among the executed Gothic architectural works of the day is not represented. The St. Pancras Terminus furnishes an instance of this.

Competition drawings: heavy tax on architects.

In examining the collection, the number of elaborate and expensive drawings prepared for public competitions will strike the visitor. They show with how much energy and ability the great buildings which municipal and other public bodies propose to erect are striven after by competing architects; they also point out how serious is the tax which a public competition imposes upon the time and resources of a rising architect, if he enters the lists determined to put himself on an equality with his rivals; and they raise the question whether all that is good in the undoubtedly stimulating circumstances attending a public competition might not be secured at a less cost to the competitors, and without loss to the public. It is a matter of regret to see works of so much ability hanging on these walls, with the certainty that the large expenditure of labour upon them is destined to remain fruitless. Meantime these designs, though for the most part prepared under conditions similar to those under which designs for actual or intended buildings are prepared, will never exert, in the form of public buildings, a marked influence on the architecture of the age. In some cases they even may have failed through being out of harmony with the spirit of the day, and it seems consequently necessary to class them apart.

The divisions of inquiry will stand as follows, if placed according to the importance of the drawings exhibited:—

DIVISIONS INTO GROUPS.

1. Civil Architecture.
2. Unexecuted Designs for Civil Buildings.
3. Ecclesiastical and Collegiate Architecture.
4. Domestic Architecture.
5. Studies.

In each group an approximation to an alphabetical arrangement of artists' names has been made, though that has been departed from wherever it seemed that any advantage would result from considering two or more designs in connection.

CIVIL ARCHITECTURE.

The Palace of Westminster contrasted with recent Gothic works.

The designs for civil buildings—a term which will include public buildings and places of business—are much more numerous and important than any others exhibited. The condition of this branch of the art in England a quarter of a century ago is well illustrated by two interesting drawings by Mr. Brakspear (3620, 3665), showing Sir Charles Barry's Palace of Westminster as the design stood in 1843. This national building was at that time being undertaken in the spirit in which it was carried out. All the details were to be strictly in conformity with the best English examples of the architecture of the period selected, and that period was the latest date at which an unmixed style was practised in this country. Sir Charles Barry's unremitting attention was directed to these ends, and to secure them he obtained the personal co-operation of Pugin himself. The minutiæ of detail are, of course, not traceable in these drawings; but if we compare them with any recent Gothic design by a good hand, we shall see at a glance how rapidly architecture has moved. The drawings are also interesting as showing what Barry's intentions at that time were with regard to various matters which have been otherwise carried out: *e.g.*, the enclosure of Palace Yard, the slender and lofty central tower, and the upper part of the Victoria Tower, as shown in the perspective view, differ entirely from the executed building. The best pendant or contrast to these drawings which modern art can furnish, would be the designs, so far as they can be seen, of a building of almost equal national and artistic importance—the new Law Courts. The competition plans were sent in for this building in the year 1867, and if the successful design of Mr. Street, or that sent in by Mr. Burges, be compared with these drawings of Barry's work, the contrast will bear out the truth of what has been advanced as to progress. The most

important Gothic civil building actually forming part of the Exhibition, and so available for the purposes of the comparison we have suggested, is, however, the Manchester Town Hall (3743), by Mr. Waterhouse, who was successful in a keenly-contested competition. This may be taken as a good example of the Gothic of the day; it possesses a great deal of continental character and many ornamental features. The great extent of tnis building cannot be judged of so well from the picturesque drawing exhibited, without any key-plan, as by the mass of some of the unsuccessful designs. Mr. Waterhouse's architecture is less formally arranged than that of several of the more grandiose designs before which his was preferred; and so far as it goes this indicates that public taste in England is not uniformly in favour of that regular disposition of features in a Gothic composition visible throughout Barry's great work, and which is a feature of many of the designs in this Exhibition, and notably of that by Schmidt for the New Town Hall for Vienna, which will be referred to subsequently.

The Palace of Westminster contrasted with recent Gothic works.

Turning now to other buildings, we come to the contribution of Mr. E. M. Barry, R.A. He exhibits alterations proposed in the Palace of Westminster (3588), which necessarily retain the old architectural character. He also sends a view of his careful restoration of St. Stephens' crypt (3735), richly decorated in colour. His next contribution of a public character, is the best specimen here exhibited of the numerous buildings raised by railway and hotel companies—the Cannon Street Hotel, London (3577). This design is in a rather ornate Renaissance style, with the storeys distinctly marked, decorative chimneys and towers, and the roofs, especially those over the towers, made into important features.

Other designs, in alphabetical order.

By the same architect is the New National Gallery, as proposed to be erected (3584, 3647). This design was successful in a public competition, and its exterior shows a building in a robust manner of Italian Renaissance, making a free use of columns as decorative features, and in many places uniting two storeys under the one "order." A central dome, and other smaller domes, crown the building. The interior is excellently shown, especially the central hall, which, as proposed here, will be a feature of much architectural importance, and such as is seldom attempted in England. The drawings which embody this design have appended to them valuable key-plans to a small scale; this practice, which Mr. Barry has followed in other cases, doubles the value to professional persons of the exhibited views.

Messrs. Banks and Barry exhibit their Italian Renaissance building, now in progress at Burlington House (3586). There are no traces here of that French influence which is at work on much

Other designs, in alphabetical order.

modern architecture, and the roofs are concealed behind a parapet with a balustrade. Mr. Charles Barry, one of these associated architects, exhibits Alleyn's College, Dulwich (3597, 3601), which has been recently carried out by him. This building is remarkable for the free employment, in its exterior decorative features, of terra-cotta; treated, however, not so much like a plastic material as like an artificial stone. The drawings, if they do not show this peculiarity—as they hardly could—at least show that Mr. Barry has, consistently enough, sought for the models of his architecture in the round-arched style of Lombardy; a country where brick and terra-cotta work was, and still is, extensively practised.

Club-houses.

The principal contribution of Mr. David Brandon to the class of civil buildings, consists of two elevations of his Junior Carlton Club House (3646, 3652). In showing his building in this manner he has departed, and with advantage, from the general practice of English architects. The Junior Carlton is in Italian Renaissance of that description which, from its depending for its effect chiefly on window-openings, and but little on columns, pilasters, or other such features, is commonly termed "fenestrated." To illustrate the meaning of this term by contrast, we may point to Mr. Gibson's Bank at Birmingham (3649), shown, like Mr. Brandon's building, by geometrical elevation. This design is the reverse of fenestrated; it depends for its architectural effect on pilasters and the cornice which surmounts them, and the two storeys of the building are treated as one, for architectural purposes.

It used to be felt that a club-house, almost more than any other building, ought to be of Renaissance architecture, and Mr. Brandon, in the building just referred to, has sympathised with the feeling; but in London a Gothic club-house has been built, and Mr. John P. Jones contributes to this exhibition a view of a Gothic building now erecting at Manchester from his designs, for the Reform Club (3622) of that city. This is a compact block of buildings with visible roofs, a strongly-marked skyline, and both round and pointed arches.

Business premises.

Mr. Somers Clarke exhibits in the General Credit, Lothbury (3759), a Venetian building reproduced with accuracy and spirit in London streets. Venetian Gothic has occasionally been employed in England; but when used, better results may be obtained by transplanting it, as in this example, entire, than by attempting to incorporate some of its features with those of another, and, it may be, an uncongenial style. In this instance the reproduction has been very faithful, and the character of the architecture has been thoroughly caught in every respect.

Business premises.

Mr. T. Chatfield Clarke exhibits the front of a business house in Throgmorton Street (3618), which, without being an exact reproduction, like the business premises last mentioned, displays many features drawn from Italian Gothic. This may be taken as a specimen of a large amount of work which has been carried out in the reconstruction of places of business in the metropolis within the last few years, though it is not the case that every house which has been rebuilt possesses so much of architectural character as either this example or Mr. Edis's pleasing gabled city warehouse (3624) of French Gothic character, or Mr. Deane's Crown Life Office, Dublin, shown by a photograph.

St. Thomas's Hospital and kindred institutions.

Mr. H. Currey exhibits a drawing showing a small portion of an eminently representative building—his St. Thomas's Hospital (3606). This is a Classic design of Italian Renaissance character, but with some unusual features on the skyline, which have, no doubt, been forced on the architect by structural necessities. It is to be regretted that no plans or sections of a building, which aims at being the foremost hospital in Europe, and in which, of course, far more depends on arrangement and disposition than on architectural treatment, are displayed. The very completeness with which the vast whole has been split up into isolated blocks is as detrimental to the architectural effect of the work as a monument, as it is essential to its sanitary success. To realise this, it is only necessary to contrast this hospital with the not dissimilar building at Netley—a work possessing that very unbroken extent which is here wanting, and gaining from that circumstance an imposing architectural effect, but at the expense of its sanitary reputation. The drawing exhibited, if it shows but a portion of the design, at least displays that portion clearly and well.

Buildings for charitable institutions, among which St. Thomas's may well rank as the foremost of the day, are also represented by Mr. H. Dawson's contribution, the London Orphan Asylum (3644), shown by a bird's eye view, almost as good as a ground-plan in its clear indication of the disposition of the institution. This building was obtained by its architect in public competition, and the design is another illustration of the complexity which modern ideas of separation introduce into the arrangements of public buildings, of course to their disadvantage as works of art. The problem is, moreover, often complicated by the necessity for rigid economy in execution; but that necessity has not existed in the case of the Baroness Burdett Coutts's Columbia Market (3613, 3632, 3762), exhibited by Mr. Darbyshire. To such buildings the Gothic style is very appropriate, but it rarely happens that an opportunity offers for adorning one of them with so elaborate and costly a central hall as is shown

in this design. A contrast to the above in extent, yet an excellent example of a very useful and newly introduced kindred institution, is also exhibited in this gallery in Mr. Butler's Cottage Hospital (3757), a homely but picturesque building.

The City of London.

The two professional advisers of the municipality of London are both represented in this gallery. Mr. Horace Jones, the City Architect, sends the Metropolitan Meat Market (3669), an Italian building of more importance than his small drawing of it would imply; he also exhibits in a good drawing a well-known specimen of London street architecture—his Magnetic Telegraph Office (3603), a Renaissance building in a mixed style. The front is full of features suggested by French originals, though not of the most recent type, and the lantern and upper part of the design assume forms which, though irregular, are very picturesque. The recent undertakings of the City of London, in addition to the markets, are illustrated by Mr. W. Haywood, Engineer to the City Commissioners of Sewers, in three drawings, which represent one of the most important civic improvements the Corporation ever attempted. These show Holborn Hill before its alteration (3582), and since the new road-way has been formed (3630), and exhibit also a view of the cast-iron and granite viaduct which now carries that road-way over Farringdon Street (3740). The architectural design of the new buildings has in the main a Classic cast, but many of their details are strongly tinged with Gothic feeling, *e.g.*, the angle shafts at the window-openings. The bridge has, to some extent, the same mixed character; but such a bridge as this is a structure fairly exempt from the trammels of precedent. The iron-work (cast-iron) has received a somewhat elaborate decorative treatment. Here, as in many cases, the most important and arduous part of the architect's task is hardly even hinted at by the drawings exhibited.

The University of London.

Sir James Pennethorne supplies three elevations which, remembering the circumstances which gave rise to them, form the most interesting series in the Exhibition. These elevations were prepared by him at different periods for the building recently executed for the University of London. Of these designs two are Classic and one Gothic. Sir James originally proposed a Greek design, and the careful line elevation on the left (3654) represents what he desired should be the front of his building. This design approaches nearer to the *néo-grec* of the modern French school than any other English contribution, except one or two students' studies. It is marked by a fine feeling for proportion. The Greek elevation being declined, the architect so altered his design as to admit of

the style being changed to Italian Gothic, and its façade, so treated and with a good deal of surface decoration, is shown by a large tinted elevation (3648). This was, however, set aside by a vote of Parliament after the work had been actually commenced, and a third elevation, once more Classic, but Italian in place of Greek, had to be designed and so arranged as to fit the masses of the building as the plans for it then stood. This elevation is the one carried out; it is not so well represented in the exhibited drawing (3651) as the other designs. The whole story is significant; it displays the degree of interference which an architect who undertakes public works in this country must expect to encounter; it illustrates the resource of the artist, and it shows how in actual practice a very difficult problem has been treated by a man of large experience. In connection with this series of elevations a pair of external views exhibited by Mr. Mew (3744) should be examined. They show a competitive design for the Manchester Assize Courts treated in Classic and in Gothic, but retaining the same masses of building in each case, and it is not difficult to see that the architect has felt cramped in his Gothic work by the exigencies of his essentially Classic composition.

The University of London.

3679. Mr. Emerson contributes his market's fountain for Bombay, of vigorous early French Gothic—a design which may be called modern in character, but certainly less removed from what is understood to be orthodox than the design for arch decoration at the Oxford Museum, exhibited by Mr. Pollen (3604). Modern secular Gothic is also represented by Mr. Sorby, who exhibits a view of the Town Hall, Bromley (3580), as built by him. This drawing is a fine specimen of the art of the architectural colourist, and the design is a characteristic example of a modern adaptation of continental Gothic. The style is somewhat mixed, having features akin to French, to English, and to Flemish Gothic. This is a composition in which the picturesque rather than the regular and formal has been studied. The same may be said of one, perhaps of both the designs exhibited by Mr. Truefitt, who contributes a bank at Altrincham (3609) and another at Manchester (3736), each building being very far removed from the severe dignity of aspect which is conventionally supposed to be proper for a bank. The Altrincham building is a good specimen of the half-timbered English domestic work, of which fine old examples exist in that locality. The Manchester example is more difficult to characterise; it must be classed with the works of those architects who have tried to advance their art by bold experiments, many of which are to be seen in the city where this building is erected. As a contrast to these, we have from Mr. Verity the designs for

Sundry Gothic designs.

Sundry Gothic designs.

"The Criterion" Restaurant (3602, 3731), in an orthodox Renaissance manner, but with a good deal of ornament.

Mr. Waterhouse, whose Manchester Town Hall has been already mentioned, also exhibits an exterior view of his Manchester Assize Courts (3657). This is a Gothic design, strongly tinged with continental elements, and its exhibition in the Paris International Exhibition of 1867 procured for the architect one of the principal medals. The general mass of this building has the regularity resulting from symmetrical disposition, yet a fair amount of picturesque irregularity occurs in parts of the work. The courts were erected a few years ago, and being very extensive and conspicuous, have probably exerted considerable influence both on the formation of public taste and on the practice of architects in the North of England.

Museums: modern terra-cotta and brick architecture.

The same architect exhibits the exterior and part of the interior of the Natural History Museum (3616, 3673), to be built at South Kensington, immediately adjoining and south of the International Exhibition. This building formed the subject of a competition, in which the late Captain Fowke was successful. After his death the work was placed by Government in the hands of Mr. Waterhouse. Phothographs of Captain Fowke's drawings hang at the south-west staircase, near the refreshment rooms, and on comparing them with this drawing, it will be seen that Mr. Waterhouse has entirely recast the building. This design is in a round-arched style approaching Gothic, and well adapted, on account of the small blocks which can be used in its construction, for execution in brick and terra-cotta; it contains the hopeful sign that though not eccentric or "Victorian," it can be assigned to no exact architectural type. The disposition of the building has all the regularity and symmetry of an Italian Classic design; it is laid out in equal massive bays, with towers surmounted by domes, but the domes are pointed, and the treatment throughout is more Gothic than Classic; the storeys are strongly marked, and the highest storey is an arcade. The interior view of the hall, though in many respects less studied than the exterior, points in the same direction: it displays large columns in pairs, carrying an arcade of semi-circular arches, and recalls something of the manner of Mr. Gilbert Scott's design for an Albert Memorial Hall, which we shall reach presently. Altogether, this work, especially when looked at as what an architect actively engaged on large public works proposes to carry out, is the most hopeful and encouraging design exhibited. It hints at an architecture of the future, based upon the features of the past, yet not bound slavishly to repeat its traditions, and it leads to the hope that a building which has for

years been desired, may, when actually begun, exercise a salutary influence on the taste of the day. This design has not before been publicly exhibited. Museums: modern terra-cotta and brick architecture

Mr. J. W. Wild exhibits the exterior of the East London Museum (3706*b*), now in progress at Bethnal Green ; a brick building, the style of which has been perhaps suggested by French *néo-grec*, but is at once modern, practical, and the outcome of a good common-sense use of brickwork. This building has, we believe, an iron and glass roof, and the design is one suited to such a structure.

The series of English designs for civil buildings, which was commenced by one of Gothic architecture from the pencil of the foremost architect of the present generation, is not inappropriately closed by a Renaissance design exhibited by the present president of the Royal Institute of British Architects, Mr. T. H. Wyatt, who (in addition to other contributions, which will be noticed in their proper places) has contributed a fine drawing of the quadrangle of the Exchange which he has built at Liverpool (3611). This important building is almost exceptional in style, so generally has Gothic been adopted in recent municipal buildings throughout England. Indeed, the influence which a single great work can exert over the taste of a city may possibly be traced in the fact that Liverpool, which boasts in St. George's Hall the foremost Classic building of England, has chosen Gothic for few, if any, of her subsequent public undertakings. In the Exchange high roofs have been introduced, and the character of the architecture is influenced in many respects by French practice. The building is, however, by no means so richly covered with sculpture as a work intended to serve the same purpose in a French city of equal importance would unquestionably have been. Liverpool Exchange.

One architectural design, of no ordinary character, embodied in an actual building, will command the attention of every visitor to this collection, placed as it is within the walls of the Royal Albert Hall. The model of the original design by Captain Fowke is also exhibited, and it may serve to impress on the visitor the inadequacy of any representation of an architectural design to convey more than a faint idea of the executed building, if, after devoting a little time to the study of this model, he will compare the slight impression made by it upon his mind with the effect which a careful examination of the structure itself produces. In the Albert Hall archæological precedent and modern science have both been called into play, and no structure of our time has so combined the sagacious disposition of plan and vigorous treatment which mark the architecture of ancient Rome with the constructive audacity of The Royal Albert Hall and the Picture Galleries.

The Royal Albert Hall and the Picture Galleries.

the present day. This building presents the only restoration, or approximation to the restoration of a Classical edifice exhibited, and also the only example of those vast roofs of iron and glass which are the direct outgrowth of the building erected twenty years ago for the first International Exhibition. The ancient Roman amphitheatre has contributed the elliptical form, the sloping ranges of seats, the numerous inlets and outlets, the spacious corridors and staircases, and the ample velarium overhead, and has to some extent suggested the nature of the architectural treatment of the subject. The roof, the new use of old materials, such as the external terra-cotta ornamentation, the interior plastering, and especially the mosaic enrichment of the frieze, are essentially modern; so is that part of the interior where tiers of boxes rise above one another perpendicularly. So, above all, is the artificial lighting, and the adaptation of the design of the building to our modern means of illumination by night; these have resulted in the production of effects more brilliant and striking than any other interior in England, perhaps in Europe, can offer, and entirely beyond what was possible to the architects of Classic times. The original conception of the design was due to the late Captain Fowke, and the point to which he had carried it is pretty well indicated by the model. The matured design, the architectural detail, and the actual construction of this great work, as well as the scientific combinations which have secured its acoustic success, are due to Lieut.-General Scott, C.B., to whom are also due the design and the carrying out of the excellent permanent galleries in which the Fine Art Exhibition of Painting and Sculpture is held, galleries which, for practical adaptation to the purpose of displaying pictures, are undoubtedly the most successful we have yet erected.

The Albert Memorial.

A splendid architectural work, still in progress, and intended to commemorate the originator of the first International Exhibition, is, from this circumstance, too intimately connected with the present one to be passed over. The Albert Memorial, by Mr. George Gilbert Scott, R.A., lies under the immediate eye of visitors to these galleries. Like the Albert Hall, it was represented at the Paris Exhibition by a model, now in the South Kensington Museum. This Memorial, in its general outlines, recalls the form of an Italian canopied monument, and it has received all the enrichments appropriate to a shrine for some precious treasure. It is exactly one of those structures which ought first to be grasped as a whole and then examined in detail, and it is to be regretted that it should be possible for it to be seen, as it is now seen, piecemeal. A rich and noble tabernacle cannot be properly judged of when the sculptured base upon which it stands, and the statue that

The Albert Memorial.

it is to shelter, can neither of them be displayed; any attempt on the part of the public now to pass a judgment upon its effect when completed would consequently be premature. Still, the imperfect glimpses obtainable show so much richness in the architectural details of the upper portion, and an employment so lavish of all the resources for permanent surface decoration which lie at the command of the architect, and the unseen sculpture is understood to be so excellent, that this great work of Mr. Gilbert Scott must necessarily count for much when we attempt to gauge the artistic powers of English architects, or to estimate the position attained by their art in comparison with that of other European nations. When completed, there can be no doubt that the Memorial will stand alone among structures of its order.

UNEXECUTED DESIGNS FOR CIVIL BUILDINGS.

The Albert Memorial competition: modern round-arched work.

The unexecuted designs for civil buildings consist almost entirely of those unsuccessfully submitted in public competition, though some few have been prepared solely as studies; but it comprises several very interesting compositions, and some of the finest drawings, looked at as specimens of architectural draughtsmanship, which have been contributed. Amongst these a foremost place is due to the contribution of Mr. George Gilbert Scott, R.A., who illustrates, by an exterior and interior view, with key-plans, his design submitted in the original competition for an Albert Hall (3707, 3711), in connection with the Albert Memorial. The drawings represent a thoroughly monumental structure, having the character of a mausoleum, and handled with great breadth of treatment; it is interesting to contrast them with the handsome utilitarian structure in which they hang: the practical character of Englishmen is fully borne out by the selection which has been made, but, in the interests of art it would have been a gain, possibly a genuine step forward in architectural progress, had Mr. Scott's design been carried out. The style is a round-arched one, not strictly Byzantine, Romanesque, or Gothic, but partaking largely of the elements of all three; and if there be any truth in the idea elsewhere thrown out that this is the direction in which progress is most possible for our modern architecture, then this design acquires great value, and the building, had it been erected, must have exercised no insignificant amount of influence. Mr. Fergusson exhibits a pleasing drawing of his competitive design for the Albert Memorial (3626), submitted in the same competition—a domical monument in a Classic round-arched style, but displaying much Romanesque feeling. It is, indeed, worthy of remark that the architectural characteristics of this design, the work of what is termed a Classic architect, are by no means widely different from

those of this design noticed above, and prepared by the foremost architect of the Gothic movement.

The Manchester Town Hall competition.

The Manchester Town Hall competition is illustrated by several designs. The successful one, by Mr. Waterhouse, has been already alluded to. Besides this, we have a design by Mr. John O. Scott, of which three very fine drawings are exhibited (3663, 3670, 3745). This is Gothic, of French character, and with much of the dignity and regularity of a Classic composition. An enormous tower, with a two-storeyed porch, forms the central portion of the principal front, and this porch forms the subject of a separate drawing. It has the large circular shafts and other bold features of early-pointed Gothic. The interior shown is richly covered with decoration. Messrs. Speakman & Charlesworth send several extremely forcible drawings of their design (3579, and five others). The principal front of this example strikingly resembles a Classic composition, but with pointed arches. Many of the features of this design are tinged with the peculiarities of Venetian Gothic. Mr. Worthington exhibits a Gothic design (3761), plain as compared with the last two, but modest and dignified. In the treatment of the roofs there is a great deal of German feeling, which is, however, absent from the masonry. This quality is especially shown in that very picturesque composition, "The Mayor's Porch" (3686), to which justice is barely done by the drawing. Mr. T. H. Wyatt exhibits a design for the same building, of Renaissance character (3607), with high roofs at the angles, and the storeys strongly marked.

Other contributions.

Mr. J. P. Jones exhibits arcaded designs of buildings for erection at Madrid and Florence (3614, 3727). Messrs. Banks & Barry exhibit their premiated design for the Foreign Office (3575), and Mr. Sorby a premiated design for the St. Pancras Hotel and Terminus (3730). Messrs. Mills & Murgatroyd send an effective sketch view of their design for the Natural History Museum (3595). In all these instances the architectural style selected is a version of Renaissance. Mr. T. H. Watson exhibits a good design in French Gothic for the London Orphan Asylum (3650).

blic provements.

Lieut.-Colonel Clarke, C.B., exhibits a large and interesting model (3796) of a design for concentrating the Government Offices, by occupying sites west of Whitehall with lofty and uniform buildings. It is difficult to grasp the idea of such a reconstruction as this, and the model in question will, no doubt, assist those interested in the subject, and unable to "read" a plan or map with ease, to form some conception of how large an undertaking such a concentration

might prove. Projects for public works are also shown in a large drawing which Mr. Peddie exhibits of his suggestion for the improvement of Edinburgh (3610); this extensive composition illustrates the direction which an architect's studies must at times take, when a whole city or quarter of a city has to be dealt with. Comprehensive schemes like this, or like the one displayed in Colonel Clarke's model, are often useful, even when they can be only partially carried out, and especially when, as in the present instances, they affect portions only of an existing town or city. Public improvements.

CHURCH AND COLLEGIATE ARCHITECTURE.

Church architecture cannot be said to be adequately represented in a gallery to which no example of this branch of the art is contributed by Scott, Street, Burges, Butterfield, Pearson, Blomfield, Bodley, or Brooks, and where the only sign of the cathedral restorations which are being and have been so largely and magnificently carried out, is the reredos for Chichester, by Messrs. Slater (3768), unless a beautiful drawing, from the pencil of Mr. Burbidge, of Sherborne Abbey, as restored by the same architects (3758), may be said incidentally to illustrate the subject. Inadequately represented.

New cathedrals are still from time to time attempted, though they are often but modest buildings compared with the old ones. Of these Mr. Emerson sends the Anglo-Indian Cathedral of Allahabad (3751), a design in very early French Gothic, but not round-arched; and Mr. Goldie, the Cathedral at Sligo (3704), a round-arched plain building with a bold tower, lighted up by a rich doorway. Messrs. Holden & Son contribute to the same class a design for the Cathedral at Lille (3608), which obtained a premium in an international competition, where the first prize was also carried off by English architects—Messrs. Clutton & Burges. Cathedrals.

Good examples of English ecclesiastical Gothic, without any admixtures of foreign features, are offered by Mr. Joseph Clarke's Bishop Stortford Church (3688), and Mr. Phipson's St. Mary's Tower Church, Ipswich (3699), and Chapel of Ease at Harleston (3705). It is not difficult to trace more or less of the influence of continental Gothic in most of the other churches exhibited, of which some of the most prominent are Mr. Anderson's proposed church (3695); Mr. Joseph Clarke's Hoddesdon Church (3621), a brick design with a gabled tower; Mr. Goldie's Kensington Pro-Cathedral Church (3674); Mr. Glover's Congregational Church (3685); and Mr. William White's brick church for Highbury (3638), distinguished by its rich surface decoration in diapered Churches.

patterns and by picturesque grouping. Mr. Marrable, Mr. Peachey, Mr. W. Young, Mr. St. Aubyn, and other architects are also contributors.

Colleges and schools.

Of the collegiate buildings exhibited, Spring Hill College (3619—3633), by Mr. Joseph James, deserves notice as an executed example of purely English Gothic. This is one of the buildings which may be described as the fruit of the labours of Pugin and his school; it was built not very many years ago, yet its freedom from French features or detail already appears remarkable when it is hung side by side with the productions of the present day. Mr. Waterhouse's Caius and Gonville College, Cambridge (3600), is a plain version of the French transitional style of Francis I.'s time, and will serve to illustrate the adaptability of that picturesque architecture to modern purposes, and help to mark our progress in assimilating styles. This design displays some Gothic feeling; it has mullions and transoms, visible roofs and the arcaded cornice characteristic of its style, and the adjoining palladian portico shown in the drawing serves well to indicate how much our architectural ideas have altered within a generation. Mr. Aldridge, Mr. Glover, and Mr. Plumbe exhibit school buildings of a type which is very characteristic. The buildings of which these are specimens are largely built in England, and are designed for the most part under conditions which enforce economy, but permit a good deal of attention to be paid to the picturesque in their composition. Mr. Somers Clarke's Swan Downer's School (3631) is strongly marked by a picturesque adaptation of features from Flemish sources. In his Asylum at Snaresbrook (3704*) the same architect has departed largely from precedent or prescription, and these severe buildings may be taken as a type of a somewhat large class of modern architecture, much of it the work of men of cultivated tastes, and marked by a studied avoidance of ornament which may, perhaps, serve as a corrective to that partiality for exuberant decoration which has seemed to be one of the features of the worst architecture of the day. In the chapel of this building (3702) the architect has shown that he knows how to employ ornamented features where he considers them admissible.

DOMESTIC ARCHITECTURE.

ansions of ..izabethan and Classic architecture

Domestic architecture has taken strong root in Great Britain, and much of the wealth gained by our merchants and manufacturers is constantly being expended in the erection of dwelling-houses in town or country, where it is generally desired that convenience and comfort shall be combined with architectural character. There is

a stronger temptation to adopt mixed or transitional architecture in the case of these buildings than in any other. This is partly on account of the tenacious hold retained by the Elizabethan style, our English transitional, upon the sympathies and tastes of very many; but there can be no doubt that so long as a dwelling-house remains what it ordinarily is, namely, a receptacle for furniture, in which the peculiarities of several countries and various epochs are mixed up together, it is the safest course to adopt a not very strongly marked style for the building. An almost palatial form of English mansion is exhibited by Messrs. Banks & Barry in their Bylaugh House (3591), built in 1849. The style of this is French Renaissance, very much tinged with Elizabethan feeling. The roofs are not shown, as they probably would have been had the design been made to-day; but in other respects it does not differ greatly from what would be now executed. Mr. E. M. Barry exhibits Crewe Hall (3666, 3701, 3726), a fine Elizabethan mansion, which he has restored after a disastrous fire. The staircase, and especially the hall, are good specimens of interiors, and are worth examining as examples of the style. Mr. David Brandon's mansion at Bayham Abbey (3581) shows a general adoption of Elizabethan features in an entirely new work, of which the arrangement is evidently modern and luxurious, and includes a specimen of garden architecture in its terraces. Mr. Fawcett, in Long Stowe Hall (3714), adheres more closely to those shapes and disposition of masses which, in addition to the transoms, mullions, gables, and other features characterise all the old Elizabethan compositions, and which are not always easily available for modern purposes. Of transitional character, but with French (Francis I.) features, is the brick mansion exhibited by Mr. T. H. Wyatt, recently erected in Park Lane (3749), and the importance of which deserved a more adequate drawing.

Mansions of Elizabethan and Classic architecture.

Pure Renaissance, like pure domestic Gothic, has its representatives among the designs for dwelling-houses. A design for a palace to be erected in Kensington Gardens (3721), exhibited by Mr. Masey, is a grandiose palatial composition, in which the architecture of the terrace is almost as conspicuous as that of the building; but the whole may be taken as a fair specimen of the most ambitious class of Italian palazzo.

Mr. E. M. Barry's mansion on the Grosvenor Estate (3643) shows modern French Renaissance practically applied to the better class of domestic work; while a design of Mr. C. H. Thomas (3612) may be mentioned as showing an extreme version of that style applied to the same purpose, but with certain peculiarities very much exaggerated, though not more so than can perhaps be seen in actual practice. Smaller designs for Renaissance domestic work are exhibited by Mr. Fogerty, Mr. Sorby, and others.

Gothic mansions and houses.

Turning now to Gothic dwelling-houses, we find a very considerable number of contributions, though but few of them represent buildings of great extent; the most palatial by far is Eaton Hall (3797), of which Mr. Waterhouse sends a model (executed by Mr. Thwaite). This, which is to a large extent the recasting of an old mansion, is a very extensive but somewhat symmetrically balanced pile. The disposition of the masses may of course be well displayed by a model like this, but its scale is too small to admit of the architectural detail being appreciated. The same architect exhibits Easneye (3637), a Gothic mansion entirely in brick, and showing some of the peculiarities of brick architecture. Of manorial houses adhering pretty closely to the types their architects have selected, Mr. Crawley exhibits an example in his mansion in Hertfordshire (3594, 3662), of brick with stone dressings. Mr. Edis exhibits Buckden (3668), a similar brick-built mansion of good domestic character; and a third, Greenhurst (3680), is sent by Mr. St. Aubyn, of which the same may be said. Mr. Alfred Smith and Mr. Risley exhibit Castle Carr (3592), an effective group showing, what is now rarely attempted, a castellated mansion. Though not strictly domestic work, the Bodegas (3710) of Messrs. George & Vaughan may be here referred to as a picturesque, well considered design of simple continental domestic Gothic, shown in a taking drawing, and evidently well-suited to the circumstances of the case.

Crawfordton House (3656) and Newtonaird House (3765), by Messrs. Peddie and Kinnear, and Westerlie House (3635), by Mr. Milne, are examples of Scotch baronial architecture as now practised in Scotland.

Of the more modest type of English dwelling-houses the two frames of drawings exhibited by Mr. Wilkinson (3627, 3742) display good specimens. These drawings are worth notice for their very careful draughtsmanship. Other exhibitors are more or less successful, but Messrs. Wadmore & Baker (3716, and five others) deserve mention for their series of executed works, mostly of half-timbered English Gothic character, shown by photographs, with the aid of key-plans. Mr. Young exhibits some picturesque lodges (3760), and Mr. Douglas a group of farm buildings (3636).

Decorative treatment of internal features.

In houses like the foregoing, where some phase of Gothic character is strongly marked, decoration and furniture ought to be carried out with the consistency and completeness aimed at by Mr. Talbert in his interior elevation of a dining hall (3642). The treatment appropriate for the interior of mansions of another type is shown by the drawings of Mr. Schloy (3737, 3750) and Mr. A. Stevens (3677, 3693). Another study both of structural and

decorative work is an iron staircase appropriately designed, which Mr. Aitchison exhibits (3703).

DRAWINGS.

Architectural studies.

In addition to many drawings which have no technical value beyond their representing some building or feature with more or less fidelity, and which could hardly be considered here without its becoming necessary for consistency's sake to include all the oil and water-colour paintings of architectural subjects, we have a few specimens of architectural studies properly so called. Of these Mr. F. P. Cockerell contributes by far the finest in his "Laborare est Orare" (3625), a composition of singular beauty of execution. Specimens of the way in which an architect actively engaged in the practice of his art must recruit and extend his stores of knowledge are exhibited by Sir M. Digby Wyatt, who has filled with the contents of a sketch-book, kept by him during a recent tour in Spain, six frames closely packed, in which will be found graphic sketches of many features of the architecture, etc., of that picturesque country (3708, 3713, 3754, 3756, 3763, 3766).

Mr. Longfield sends laborious restorations of the tomb of Henry III., at Westminster Abbey (3593, 3683), and of the Shrine of Edward the Confessor (3684, 3692), in the same building. The patience and care shown in these drawings cannot be spoken of too highly: into any archæological questions which they may raise this is not the place to enter. Equally good are Mr. Judge's less forcibly coloured studies of the famous mosaic pavement at Canterbury (3681, 3687), which is shown as a whole, and by details of portions to a larger scale. These drawings may serve to give to the general public a glimpse of the nature of that patient and almost affectionate study which has been bestowed on the remains of ancient mediæval art by numbers of students; such study, and such study only, has rendered possible the perfection to which modern Gothic architectural work has been carried. The results of academic instruction are exhibited by Mr. Florence, Mr. Lee, Mr. Watson, Mr. Spiers, and Mr. Vialls, in drawings which in many cases will repay careful examination, and of which several have received the medals and other rewards of the Royal Academy and of the Institute of Architects.

AUSTRIA.

Designs by Ferstel, Schmidt and Hansen.

Austria is less inadequately represented than any other Continental State, but still her contributions are scattered and imperfect. The most important of these is a portfolio contributed

Designs by Ferstel, Schmidt and Hansen.

by H. R. v. Ferstel (3770), one of her foremost architects. This includes photographs both of the designs of the Votive Church at Vienna and of the building itself. The "votiv kirche" is the most important church displayed, as an architectural design, by any exhibitor; it is an elaborate work in florid Gothic, almost resembling a cathedral in richness and scale, and, although the style is not one towards which English sympathies have leaned, few will hesitate to recognise here the hand of a master. A grand scheme for a museum of art and natural science, of Italian Renaissance architecture, is also included. So is the Hungarian "Akademie der Wissenchaften," a large and slightly irregular pile of buildings in a fine style of florid secular Gothic. Another set of these photographs represents the Renaissance palace of the Archduke Victor, a design of perhaps less originality than the others, but of great merit. With these are sent several smaller designs, making up a good and varied representation of the work of an architect of European reputation. F. Schmidt exhibits his new "Rath-haus" (Town Hall) at Vienna (3774), of stately formal Gothic, but a fine mass. It is to be regretted that this design, which was successful in a great European competition, is not shown on a larger scale, especially as the character of the architecture is unusual to English eyes. The same artist sends a picturesque view of his restoration of Burg Carlstein, in Bohemia.

S. R. v. Hansen sends a folio of designs for an academic building for Athens (3772*), and photographs of the building itself and some of its details, taken during progress. The style is Ionic, and there seems much Classic feeling as well as Classic correctness in the beautifully-executed drawings, and in the fragments of detail photographed.

School buildings.

In the Education Department a portfolio of plans for four sets of school buildings, prepared by direction of the Board of Works of the City of Vienna, and signed by their chief engineer Haussmann, is exhibited (6264). Of these a "Lehre Pädagogium" is well shown by plans and an exterior perspective; the arrangement is, as is common in plans of good continental architects, very well studied; the few architectural features, which are of a simple fenestrated Renaissance character, just suffice to relieve the building from absolute plainness. Much the same may be said of two sets of designs for a "bürgerschule," of which one exhibits a sensible, plain use of semi-circular and segmental headed arches. The remaining design is a block of buildings in brick, of simple, dignified, unostentatious semi-Gothic character. The community of Pesth exhibits twenty-two photographs from drawings of school buildings (6269); these are mostly simple; the elevations are in a very plain description of

Renaissance architecture. A very complete set of carefully prepared plans of the Chemical Laboratory in the University of Pesth (6270) is also exhibited, no architect's name being appended. The design is of quiet but good Classic character, and the arrangements are most thoroughly carried out in every detail. School buildings.

A glimpse at the general aspect of the public buildings of Austria is afforded by three frames of small but clear photographs exhibited by Frankstein, and hung in the corridor near the refreshment room. The frequent adoption of Renaissance architecture, and the prevalent air of refinement and masterly treatment which are characteristic of these buildings, will not escape notice.

BELGIUM.

J. Hoste, of Brussels, sends, in a complete set of plans, his competitive design for the Vienna Town Hall (3784). These drawings give a better idea than the small sketch of the successful competitor (Schmidt, Austria) how extensive a building is proposed. The character of the architecture is French Renaissance, founded very much on the new part of the Louvre; a vast domical feature marks the centre of this building. Town-hall.

The Education Department contains a portfolio of executed school buildings in Belgium, collected by Blandot (6268). They are buildings of moderate size, and their chief peculiarities, as compared with English school-houses, are their greater compactness of plan, their being cut up, when extensive, into smaller rooms, and their being frequently two-storeyed. As architectural designs they are almost all destitute of that picturesqueness by which an English school-house is so often rendered the ornament of the village. One church architect, Carpentier, exhibits. He sends the Church of St. Pierre, Tournay (3653), a well-grouped plain brick church, severe almost to a disdain of ornament, but large in its conception. This drawing serves well to illustrate the difference between foreign and English draughtsmanship. It is careful, severe, and evenly tinted, but devoid of dash or feeling. Much the same may be said of the other contributions sent by this architect (3782). School buildings and churches.

ITALY.

The original drawings illustrating Gravona's monograph of Monréale, to be found near the Sanchi Tope model, are too remarkable in execution to be passed over without a word of mention. Archæology.

NORWAY AND SWEDEN.

Archæology and school-buildings.

The early architecture of Norway and Iceland is illustrated by characteristic specimens of Runic ornament, well copied and displayed among the reproductions (3984—3992). Recent architecture is exhibited only in school buildings. A slight but cheerful wooden structure, too slight to be quite a faithful transcript of the architecture of a timber district, has been erected in the grounds (6352); and here, among other things, plans for a School of Art, by Col. Stahl, and a Royal Polytechnic Institution (6353), by Col. Scholander, are hung up. They are of Renaissance character. More interesting is the simple but artistic school-house for Kilanda (6345), shown in the same spot. Here also are some models, intended chiefly to elucidate arrangement of school-houses and their adjuncts. Herr von Hanno exhibits a well-prepared set of school plans.

INDIA.

Archæology: European buildings: students' drawings.

Many contributions illustrative of the marvels of Indian architectural art are included in the present display. The most remarkable of these is, of course, the full-sized reproduction of the gate of the Sanchi Tope (3981*a*), showing, as it does, how rich in sculpture in high relief, as well as in surface ornament, good Indian work often is. Photographs illustrative of the caves of Ellora and Ajunta, architectural sculpture from Tanjore, Trichinopoly, and other localities were to be found among the first instalment of objects displayed; and to the number of these large additions will be made before the close of the Exhibition.

Of European buildings and works, such as will mark the poverty of our artistic instincts and education, contrasted with those of our Hindu and Mahomedan subjects, the less shown perhaps the better. The lowest point of the scale is touched by some drawings of school and other buildings exhibited. True, they are executed by native draughtsmen, but they are too unmistakably British for the source of the artist's inspiration to remain doubtful. Better things, however, are included. The Elphinstone College, Bombay, and the Engineering College, Poonah, are among the buildings photographed, and they possess a definite architectural character: so does Mr. Emerson's fountain at Bombay (3679); and these may be taken as representing a group of public buildings commenced during the Governorship of Bombay by Sir Bartle Frere, in which an attempt was made to introduce, as appropriate to Indian requirements, architecture of a character at once simple and bold, drawn

from Western Gothic sources, but modified to suit the materials and the climate of the tropics.

The various schools of art in India have sent favourable specimens of architectural draughtsmanship as learned by their pupils.

Conclusion.

In closing this notice (in which some foreign contributions, which are catalogued, but up to the time of going to press had not been hung, are necessarily unnoticed), it is impossible to avoid an expression of regret that one express aim of this Exhibition—that it should be International—has been missed in the architectural section in 1871. The Exhibition is, however, to be annual as well as international; and there will, therefore, occur an opportunity, if foreign architects will embrace it, for this defect to be remedied in succeeding years. A smaller amount of drawings from Great Britain might suffice, were they mostly representations of current works, to display the architecture of the year; and were the custom general of exhibiting in this gallery good geometrical elevations with key-plans, together with photographs of our completed buildings and of their most important details, and were the same description of drawings and photographic explanations, also contributed from Austria, Belgium, France, Germany, Italy, and other European countries, the means of an international comparison of architectural work of the most interesting kind would be furnished. In such a friendly contest there can be no doubt that Great Britain would assume and could maintain a high position, notwithstanding the great merits of the architecture of her rivals, and the admitted skill, learning, and taste of continental architects.

REPORT

ON

TAPESTRIES, CARPETS, AND SHAWLS,

In the International Exhibition of 1871.

By J. HUNGERFORD POLLEN, Esq., M.A.

The productions of the loom, which assume an artistic character, are represented by tapestries, shawls, and carpets. Embroidery with the needle will be treated of in a separate Report. We are concerned, at present, with fabrics that must be called manufactures as regards the numbers produced and the mechanical character of their various processes, while they are each of them an individual object or whole, embodying a distinct artistic design.

Tapestries. Tapestries may be said to represent the skill of Europe, while shawls represent the highest refinements, and carpets the thickest, most massive wool products of the East. European nations have adopted, as we shall see, and have modified in various ways, these manufactures and designs of Eastern nations. There remain, however, as will be acknowledged, if we are at the trouble of careful study, a certain harmony and refinement in the manufactures of Cashmere, Persia, India, Turkey, and other oriental countries, which no European imitations can surpass. Even those changes in manufacture which are, in one sense, improvements on the rude or simple processes, or on the results of immemorial methods of manipulation, can scarcely be said to have bettered what was so surpassingly good in these Eastern productions. Our own country and France imitate the Eastern shawls and carpets with various changes and modifications. So far they may be said to have spread abroad a taste for an artistic element of dress when the old characteristic costumes of Europe have all but disappeared.

Loom design. It must be borne in mind, however, that what gives these pro-

Loom design.

ductions so great a value, apart from the brilliancy of their colours and the harmony of their arrangement, is the evidence of incessant mental attention, and the tenderness and care of a real human hand and human invention throughout. Manufactures done on a large scale, by means of machinery, cannot but leave on the work the expression of this wholesale action, and the disregard of those evidences of care and thought which in things slowly wrought by hand, or small and rude looms, invariably add a value to the work. Hence, though imitations of oriental fabrics have their own uses, and give a solid commercial return, they fall behind the originals in the elements of beauty.

Origin of tapestry.

We begin with tapestry, the most artistic form in which any woollen manufacture comes before us. It was introduced to Europe from the East. It is said to have been an unknown splendour in Rome till the death of Attalus III., the King of Pergamus, some hundred and thirty years before our era, who bequeathed all his goods, including tapestry, to the citizens of Rome. At any rate, during the splendid era of Roman luxury that was inaugurated with the empire of the Cæsars, tapestry became a kind of furniture by no means uncommon. We here mean such tapestry as we have been familiar with in modern Europe, and of which we shall see various examples in this year's Exhibition, pictorial representation in worsted or other yarn. Extraordinary accounts are to be read in the Roman poets of the pictorial tapestries that were made in Rome. Though we may consider poetic descriptions, as more or less coloured or idealised, it must be remembered that, however highly coloured, these are descriptions of actual facts and realities. We may be sure, then, that such histories as that of Theseus and Ariadne, and the fall of Troy, were occasionally represented by the loom or in needlework in ancient Rome. Carpets, or *tapeta*, were common enough, but we shall come to them presently.

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In the middle ages of Europe, perhaps nothing was made more of, in the way of furniture, than hangings of tapestry. Furniture was scarce, and the most useful articles were benches and tables that could be put on trestles and carried about, and boxes or chests above all. In the latter even kings transported their household goods on the backs of sumpter mules or horses, or in rude carts, such as could live on the still ruder roads of the period; and of these household goods the most useful were tapestry hangings. To unroll and put up such hangings on the gaunt stonework of feudal halls, or the comfortless chambers of their castles and strongholds, was the work of an hour or two; thus any room or tent could be furnished with a splendour suitable to the circumstances of the

monarch or leader. The Bayeux tapestry, said (erroneously) to have been the work of Matilda, Queen of William the Conqueror, and her handmaids, was used for hanging in this way the walls not of a castle or hall but the Cathedral of Bayeux. That historic composition is not tapestry properly so called. It is embroidered with the needle on white linen, and not worked in the loom. But many splendid remains of tapestry, made and kept for churches, to be hung up on festive days, are preserved in France, and some of these, belonging to the treasure of the Cathedral of Angers, were exhibited in the Exhibition at Paris in 1867. They are dated from 1384 to 1414. Use in the middle ages.

The great seat of the manufacture of woven tapestry was Arras. From the town the material took its name. The Italians called such hangings *Arazzi*. The allusions to hiding "*behind the arras*," in Hamlet, "*My arras, packed in cypress chests*," and other Shakesperian passages, would show us how general was the use of tapestry hangings in sumptuous houses of the 16th century. To Arras were sent the cartoons of Raphael (now in this country) to be worked, by Bernard von Orley. It is probable that much of the Italian tapestry we meet with was actually woven in Arras or its neighbourhood. But we have nothing to show in this Exhibition of Flemish tapestry. That manufacture has long ceased.

The most renowned of modern tapestry, as is well known, is made at the State factories called the Gobelins, in the Rue Mouffetard, in Paris. This factory was established in the 17th century. A dyer, of the name of Gilles or Giles Gobeleen, a Fleming, established a dyer's shop there as early as the reign of Francis I. Two brothers, of the name of Cannaye, were makers of tapestry there at a later period. In the following century we hear of one Gouck, a Dutch weaver, and of a workman of his, of great skill, Jean Leoudson, who was the first to use the *haute lisse*. In 1667 Louis XIV., at the instigation of his powerful minister, Colbert, established a State manufactory under the title of "Manufacture Royale des Meubles de la Couronne," in this building of the Gobeleens. Le Brun, the painter, was made first director. The designs of the tapestries, made in the earlier years of this institution, were from his pencil, and many have been engraved. At first the Gobelins factories were allowed to execute private orders. At present nothing is made there but at the expense of the State. The establishment is borne on the civil list, and the tapestries are either used for the State palaces, or given as State presents. The work is finished with the completeness of painting, and is exceedingly slow of execution. A workman can scarcely execute in a year Gobelins

more than a square metre, or a trifle more than a square yard. A piece may be seen in the Kensington Museum.

Haute and basse lisse.

The Gobelins tapestry is worked in the *haute lisse*—that is to say, the loom is upright, the warp threads are perpendicular. The weaver stands behind it, and has the exact picture or cartoon to work from. Each thread is passed through and pressed down so as to cover the warp completely, and is then brought through to the back. The older method was to use a "*basse lisse*," a flat or horizontal loom with the painting under it, but the workman was unable to see with equal certainty what he was doing. The Gobelins tapestry is the most costly that is made, amounting, in some instances, to as much as four thousand francs, 160*l*., the square metre. The dyes of the worsted are of extraordinary richness, and are very permanent. Old pieces of Gobelins of great merit may be seen in various houses in this country. At the time we are preparing this Report, four large pieces are being exhibited in Great Marlborough Street. One of these, some twenty feet in width, represents subjects from the mythological history of Jason, and is from the designs of Le Brun. A hundred years in this instance seem to have made no impression on the colours. In Paris, where old Gobelins tapestry sells at high prices, they have methods of manipulating the faded threads, and restoring their brilliancy, provided that the colours remain intact on the back, which is generally the case. In the early Flemish tapestries silk and gold threads were used, but the Gobelins confine the loom to the use of pure dyed wool fibre. Examples of the Gobelins are still expected in the French Court.

Aubusson tapestry.

Other well-known French tapestry factories are carried on at Aubusson and Beauvais. Of Aubusson tapestry several specimens are exhibited this year in the French Annexe. They are figure compositions intended for wall panels. Some of these have gold thread grounds, the gold thread being made of white metal wound on yellow silk, which produces the effect of gold threads, a method common in thesilk fabrics of Syria. The colours are rich and full, and the designs are brought up to imitation of nature, as paintings would be. By examining any portion of one of these figures, an arm or limb, in which the modelling of the forms and the varieties and delicacies of broken colours are accurately followed, we shall be able to appreciate the enormous care and labour required to produce work so fine and complete. Not only has an exact painting to be first made, but every minute stitch or turn of the threads of the weft or transverse threads has to be selected, and considered as one of the finishing touches of a painter's work; and yet none of these productions equal the Gobelins in artistic excellence. Other wall

panels of mythological figures, worked in the most brilliant reds and blues, are exhibited in the Belgian Gallery No. 3850. But these are executed by the Braquenies, the same firm of Aubusson weavers who exhibit those just described. We shall notice a large tapestry carpet, also of this same manufactory, under carpets. Aubusson tapestry.

Tapestry was formerly made in England. James I. gave a large sum of money (near £3,000) to help to set up a manufactory at Mortlake, near Richmond. Sir Francis Kleyn, or Crane, is known as having presided over those works. Tapestries were made there from the Raphael cartoons, and sets of these are to be seen in country houses still. Another establishment was set up at Soho (Soho Square), but failed after a time. Much old tapestry that is still found on the walls of our ancient mansions has been produced at these native factories. They ceased working at the beginning of the last century. Our English galleries this year show no tapestries woven in the looms. Various methods are employed of ornamenting cloth, linen, etc., by bold embroideries, such as those of Mrs. Sotheby (Nos. 3909 and 3910), as well as Mr. Severn's "Sabrina" cut work, sewn on cloth, a very old method of making pictorial embroideries; but these are not made in the loom, and we leave them to the Report on Embroidery. Tapestry made in England.

The next portion of our Report deals with Carpets In these we see probably the oldest manufacture of a textile kind in the whole world. If pictorial tapestries were known in the days of ancient Rome, it is certain that *tapeta*, or carpets, either as coverlids for beds and couches, or as "foot-cloths" (as carpets were called in the middle ages), have been known and used one way or another throughout the historic periods. The Babylonians, Ninevites, and Egyptians used them rather as hangings for state occasions than foot carpets. They hung thrones and state seats with carpets, and those of Classic Greece and Rome were covered with textures of this kind made of wool, richly dyed in the fibre. Carthage was famous for such textiles; so were Sardis, Miletus, Alexandria, and Corinth. They were distinguished by the pile, as having one side piled or as having both sides close. These varieties had technical names. They were distinguished also by their size and shape, such as the *stroma*, to cover the thrones of Mars or Jupiter, and the *peristroma*, a coverlid that could hang down the sides of the couch, and so on. Carpets.

Woven carpets were introduced into our own country early in the middle ages for church use. The Crusaders brought both objects and ideas back from the East; and carpets among the former. They are said to have been introduced into the furniture of houses First introduction into England.

First introduction into England.

in this country in the reign of Edward I. by his Queen Eleanor of Castile. The Moors had certainly made the Spaniards more or less familiar with the use of them.

Eastern nations, however, sit rather than walk on their carpets, and dirty shoes are not supposed to have any proper right to walk over those costly and often beautiful productions. In the English houses of former days rushes were strewn on the ground, as we have seen green sprigs in the churches of Italy on festal days. As late as the days of Wolsey, and the luxurious court of Henry VIII., rushes continued to be strewed on the floors of the great hall at Hampton Court, and all other rooms open to guests. Giustiniani, the Venetian envoy, suggests, in a letter to the Signory, that they would find a few fine carpets, an acceptable present to the cardinal. They were then used as table or seat covers. In portraits of the worthies and beauties of Elizabeth's court, Turkey carpets or rugs are constantly painted as table covers in the background. The earliest importers from Turkey and Persia were the Venetians, who retained most of the trade between Europe and the East.

Turkey carpets

We may divide the oriental carpets into three classes—the Turkish, Persian, and Indian. Very fine carpets are made in the Northern States of Africa (in parts of Algeria), but the quantity is inconsiderable, and we do not find them often in the English market. The dyes of these Algerian carpets are bright, specially certain delicate yellows, owing to the fineness of their wools, which take and retain an exceedingly pure primrose stain.

The Turkey carpets are exported in large quantities from Smyrna, and of these the greater number are made at Oujak, in the province of Aidin. They are made by hand, each tuft of wool being knotted on the thread of the warp with the small wooden needles or shuttles containing the material of the pattern. The smaller rugs are made at the village of Koula, in the neighbourhood.

Their designs.

Very fine specimens are exhibited by Messrs. Cardinal & Harford; Watson & Bontor; Ali Elvagi Zadé, and others. The designs of the large carpets are rude and simple. They descend from a remote antiquity. The general distribution is a great central pattern or mass of pattern, disposed diamond-wise, large masses of pattern, similar to the centre, in the four corners, and sometimes, where the carpet is long, similar masses on the two sides. The intervening space is generally starred or spotted with a simple pattern. Red or green are the general ground colours, with blue, yellow, and black. Several lines of border run round the whole. The green and red are counterchanged one on the other. The

Turks represent no living animals, and in the coarse material and thick tufts used for these carpets, two or three foils or leaves are the nearest resemblance to a flower. Perhaps a mosaic of broken zigzags and spots forming, when united, a great flower with broken outline something like that of the columbine, is the nearest recognisable design that can be assigned to them. The large Turkey carpets, however, are always rich and harmonious in colour. The disposition of the pattern mainly aims at this result. Even when not exactly collected in the described way, the pattern continues isolated, and leaves portions of ground unoccupied. White is rarely seen in old fashioned Turkey carpets. We notice, however, white borders in some examples, and this seems a departure from the grave tone of the old patterns. **Their designs.**

The Koulah rugs are totally different in colour and in effect, though the designs remain much as those of the large Turkey carpets. In these small carpets, or rugs, the colours are more brilliant; white is used often and narrow borders are numerous.

Persian designs and colouring.

The Persian carpets are of similar make to those of Turkey, but the designs are different and so is the colouring. In the larger Persian carpets we find the pattern, which is conventional, more broken than the Turkish, and evenly distributed, so as to give an effect of blending all the colours together. Deep blue, pink, and apple green are predominant, the ground being generally dark blue. White is freely used in small lines of separation between the colours. The borders are gay, and the main line or division of the border is usually occupied by a sort of flower with a centre and petals. If we compare Persian wares, such as the painted wood-work of Cashmere (thoroughly Persian), and the inkstands, boxes, and picture-frames that are imported from Persia, we see at once a finer and more pictorial notion of design than any we shall find in Turkish art. The Persians, a sect of Mahomedans differing from the Turks, permit the designing of living creatures; and both in painted ware, shawls, and in direct portraiture we see depicted animals, hunting scenes, and the moon-faced and stag-eyed beauties of the Persian harem. Hence, in all their painting and colouring there is a more vivid appreciation of nature and a more refined and varied system of colouring. Light ultramarine blue, tender varieties of grey, broken by delicate gilded patterns, etc., are favourite hues in Persian colouring. We shall recognise this variety and luxuriance by a glance at the Persian textiles. We note a small carpet or rug, almost as fine to the touch as velvet, Persian in colouring, and of great value. It is entirely of wool, and from Kurdistan. It is exhibited by Messrs. Vincent Robinson & Co. It is fine enough for a table or sofa-cover. It lies under a marquetry table, exhibited

Persian designs and colouring.

by Messrs. Jackson & Graham in the British picture gallery, W. side. Persian rugs or carpets are occasionally sent over, consisting of a plain ground of rich golden yellow, broken by one conventional cypress tree with birds or animals or a flower or two, equally conventional, and borders round. We meet with these patterns on white, or on scarlet grounds as well. The nearest approach to that class of Persian pattern will be found in No. 126—two rugs exhibited by Ali Effendi Elvagi Zadé, which have one central pattern on a mass of red, and narrow borders.

Size of Persian carpets.

The number of Persian carpets large enough to form the actual carpeting of our rooms is small. Most of those imported are used as hearth-rugs. They are largely imitated in France, and the imitations are imported in great numbers into this country. Though the designs are copied from Persian and Turkish patterns, the effect is dull and heavy when compared to the genuine rugs. They are sold at a lower price.

By far the most beautiful and characteristic carpets exhibited this year are those from Masulipatam and other parts of India. The designs of these are various. Of Indian colouring the full Indian red, broken by flowers or conventional leaves, in which orange predominates, forms a leading feature. A cool, low blue, a green of similar gravity of hue and soft creamy white, complete the palette of the Indian designer of these fabrics.

Indian colouring.

We cannot help seeing that some of our carpet-dealers have had changes effected in this old Indian system; that some white in borders has been actually *bleached*, and that one or two garish combinations have been introduced. The colours have been intensified and made flatly uniform, instead of broken and slightly varying as the masses of red and other colours are left by the native weavers. On the other hand, we recognise genuine old Indian carpets, exhibited by Messrs. Lapworth; Vincent Robinson & Co.; Watson, and others, especially No. 6128 and the carpet next to it.

Linen backs have been introduced to meet the orders of some of our dealers, and we hear complaints of the wearing qualities in consequence. In these ways both English and French dealers have had changes, more or less important, introduced into these oriental designs to suit the taste of our buyers. In all such cases we cannot but regret losses of the exquisite harmony of the native arrangements of form and colour.

ental fabrics pect of

Oriental colouring in textile fabrics seems to result from a gift to the various races that produce them. The native designers proceed in accordance with immemorial traditions, and with a certainty that resembles instinct. Of all artistic powers, that of colour, in its

highest harmonies, is the most difficult to teach. Though general principles can be imparted by scientific rules, the power of colouring beautifully is undoubtedly one rarely attained. It seems to prevail in races as a special gift. It exists where the knowledge of form is unknown. It accompanies an unconscious sympathy with nature, and seems, we must repeat, more allied with instinct than demonstrable by science. How many actually savage nations colour their cloths, or wrappers, or mats harmoniously, though absolutely devoid of social or mental cultivation! And, on the other hand, as nations have progressed in scientific attainments, the love of colour, in dress certainly, in other ways generally, is diminished. We may cultivate the study of colour, and understand its laws, but in textiles of all kinds, from carpets to gossamer muslins and gold and silver tissues, the traditional taste of oriental nations, remains unattainable by Europeans. And of European nations, those most old fashioned, least changed from the rude ages of the past, retain the greatest enjoyment and feeling of colour.

Oriental fabrics in respect of colour.

Besides these woven woollen carpets, India produces Velvet Carpets embroidered with gold from Benares and Moorshedebad; one of these productions is exhibited in the division occupied by the Indian Government. Many readers and visitors will remember the costly articles of this kind contributed to the great Exhibition of London by the Queen. These rich fabrics are of fine velvet, embroidered with bullion gold. They belong properly to another class of fabrics, and the account to another Report. We may, however, include among carpets those woven of silk throughout. The Maharajah Goulab Singh contributed such a carpet to the Great Exhibition of 1851—a magnificent manufacture of pure silk, nearly an inch thick in the pile, showing to perfection the dyes and the harmonious arrangement of the native artists. In every square foot there were said to be contained ten thousand ties or knots of silk. One will be found in the English furniture room, under a piano.

Velvet carpets.

The older of our modern regular fabrics of carpets in Europe are those of Aubusson and Beauvais. These, as to designs, are more or less in the character of tapestry. They have little relation to the traditional patterns of the East, and are made-up imitations of flower patterns, with the character of relief, and broad spaces of flat colour. Gay reds, blues and white figure in these textiles. They thoroughly represent the gay and lively character of furniture of the last century. A very large carpet of this description is exhibited in the French Annexe. It is of Aubusson make, and is, in fact, tapestry. Every tint of delicate rose, blue, pea-green, madder, lake, etc., is to be seen on this carpet. The design is composed of figure medallions, luxurious garlands, and architectural borders. Such a design is

European carpets, Aubusson.

wholly unsuited to a carpet. In point of texture it would seem too fine for a floor.

English carpets of various textures.

English carpets began to be established as a home manufacture in the last century. In 1750 a premium was given by the Society of Arts for the best imitation of a *Turkey carpet*, to a Mr. Moore. English factories of Brussels and other carpet fabrics were established at Paddington during the latter half of the last century, under the patronage of the Duke of Cumberland. Parisot became the principal designer. In Brussels carpeting, the pile of the fabric is kept in small loops, and the visitor will see these made in six different threads of worsted, in looms in the machinery gallery, on the Jacquard principle. In the Kidderminster texture, two or three threads of wool are employed both in the warp and the weft. These, as the weft threads go in or out, give two surfaces, the ground and the pattern being counterchanged on the back and front. Such materials are useful for portières and other heavy curtains. Messrs. Gillow exhibit designs in this material specially intended for these purposes.

Mr. Owen Jones.

We cannot but see with satisfaction how the oriental taste in this matter is creeping into our modern carpet designs. A glance at the Axminster and other velvet pile or cut carpet designs in the long porcelain gallery this year will show how the oriental designs, altered in such ways as European imitators must be expected to alter them, have obtained a sway unknown twenty years since. Messrs. Jackson & Graham, among the enterprising furnishers of our more sumptuous modern houses, have a number of designs worked for themselves. Most of these originate with Mr. Owen Jones, whose admiration and advocacy of oriental decoration have had so wide an influence. No modern architect has been so influenced by oriental feeling in his interior designs. His carpet designs of this kind are the most successful exhibited.

French factories or carpets.

The French Government took up the old carpet factories at the Savonnerie (so called from a soap factory which they displaced) in 1826. The most notable specimen of work turned out from thence that we can refer to is the large carpet made for the Louvre. It is 1,300 feet in length, and consists of no less than 72 pieces.

We must not leave the French productions of the year without noticing some that bear a half-tapestry, half-carpet character. These are a series of specimens of painted woollen and linen panels (for the backs of chairs, etc.) exactly resembling tapestry when not examined very closely. These are exhibited by Guichard.

wls.

We pass from tapestries and carpets to the finest textures, if not

the most artistic products of the loom—Shawls. As studies of colour, at any rate, the shawls of India have no rivals in the range of textile fabrics.

Shawls of Cashmere: the "Tree."

The most celebrated of these productions are the shawls produced in Cashmere. This fertile valley, close under the spurs of the Himalayas, produces a singularly fine wool, that of the Thibet goat. The fineness and softness of its fibre retain colours of the most intense and delicate hue. Lakes, partly obtained from the chaya root, yellows, blue, orange, greens of several tints, rich and vivid; white, soft and low in tone, and absolute black, enable the designers to make up endless combinations. The designs of all Cashmere shawls are very similar to each other. We may call them combinations, or compositions, of a certain pear-shaped form, representing a conventional tree. This tree is said to represent the sacred tree or "Hom," a "Conifer." Whether showing any traditional connection with an ancient "tree worship" of the East, or merely typifying some sacred or venerated tree or grove, as the oak was held sacred by the Greeks at Dodona, and the Druids in Britain, we do not venture to determine; or whether this "Hom" represents the ancient mythical tree called "Sidral Almuntaha," that bore a leaf for every human birth, and lost a leaf for every death throughout the universe.

In some of the shawls exhibited by the Indian Government, in the square glass-case of the furniture court, west side, we notice an occasional peacock, of conventional design, twining, as it were, amongst the rolling curves of the tree or pear forms. The borders of these shawls are made of little panels, under a sort of Arab cusped arch, and of the brightest colours. Each seems made in one of the rude looms of the country separately, and darned to its neighbour by hand. One type specimen, exhibited in the case in the furniture room, has the same pattern worked on both sides. A sum of £1,000 is said to be its price. These beautiful fabrics are produced at great cost of time and labour; the looms are small and rude, and numbers of hands are required to complete a single shawl. They can never, therefore, be otherwise than costly.

Attempted improvements.

The French merchants have laboured to "improve" the old Cashmere designs, and have sent a designer out to the Rajah, but we cannot think that the result, as here indicated, has improved what has for generations been so admirable.

We have also seen Cashmere shawls, with the same pattern embroidered on the dyed fabric with the needle, not worked along with the whole fabric in the loom. Such a shawl-carpet makes an awning to the Indian Court.

Coarser kinds.

A coarser texture of Cashmere shawl, also covered with embroidery, is used in India for table-covers, etc. On some we see figures of men and animals, and hunting scenes. They are thoroughly Persian in character. Varieties of smaller pieces of such work are used for cushion covers, table mats, and so on. These productions, however, lie on the confines of shawl and embroidery, partaking, from the absolute covering they make of the shawl texture used for a ground, rather of the shawl nature than that of embroidery proper.

Indian gossamer fabrics.

Besides these exquisite productions of the Valley of Cashmere, we have from India woven tissues, some embroidered and some the work of the loom only, of a splendour unknown to our European weavers. The gold and white, gold and purple, white and silver muslins, must be ranked for colour, taste, and delicacy of arrangement, amongst the artistic triumphs of the Indian loom. Some examples of these materials are shown in the Indian Court of a gossamer transparency. They are used for the dresses of the ladies of the Indian princes, or for their own. We are sometimes dazzled by seeing costumes of these materials, on state occasions, in our London streets. They have maintained their traditionary splendour time out of mind. The Greeks either imported these materials, or the taste for them, from the East after the great Ionian migration, when Greece became half Asiatic; or their own inventiveness imparted these designs and combinations to the oriental races. After the conquests of Alexander, Greek art did, undoubtedly, exercise an influence on oriental architecture and sculpture, perhaps on oriental "imagery" generally, more particularly that of Persia. But it is more probable that these textile splendours are of oriental origin: that the Greeks adopted these beautiful combinations and fabrics, often alluded to by Homer, after they got a hold on Asia Minor; and that as Imperial Rome adopted the arts of Greece and absorbed every element of luxury that the world could offer, these light and transparent textiles found their way to the wardrobes of the degenerate Patricians: for the way in which men as well as women adopted such transparent draperies in open day became a theme for the strictures of moral writers of the time.

Materials of Turkish textiles.

We have no Turkish, Egyptian, or Syrian silks worth naming in this collection. The splendours, however, of Turkish costume, partly Syrian, partly Greek, and partly from the looms of Broussa, near Constantinople, are of the same kind, though less instinctively elegant than those of India. The Sultana Hafiten, in 1715, received Lady Mary Wortley Montague on a sofa, covered with pale blue velvet, figured on a silver ground. The knives were of gold and

the hafts set with diamonds. The piece of luxury that most grieved her guest was the table cloth of tiffany, embroidered with silk and gold in the finest manner; and costly napkins of the same material equal to the finest that were woven in Europe, also similarly figured with gold, of which a set was *entirely spoiled* at each meal. Materials of Turkish textiles.

The European looms manufacture shawls in imitation of those of Cashmere, but not the magnificent fabrics just described. As early as 1784 the manufacture of shawls, after the Cashmere patterns, was introduced into Norwich; fine Thibet wool was imported for this purpose, but the looms were small and the shawls were woven in portions, as in Cashmere, and darned together by hand. Gradually larger looms were used and the whole shawls were made on them. The Paisley manufacture of these shawls was set up about the same time. English shawls.

The French had little experience of Indian shawls till after the campaign of Egypt. From that time carpets of oriental patterns, and oriental shawls were manufactured at home, with certain modifications of pattern not always happy. French shawls.

Crape shawls are fine imitations of Chinese work in silk. Grenadines, chenilles, and other such fabrics do not challenge our notice at present as artistic loom-work.

Levantine and Albanian scarfs are fine stripe combinations of red, yellow, green and blue, sometimes black or white, and bright and well arranged. They are imitations of similar work woven in Albania and elsewhere. All these patterns have an Eastern, probably a Damascene, origin. We have no specimens in the Exhibition, as yet, worth citing as examples of these fabrics, as silks are not exhibited in any completeness, and do not form one of the classes selected for the year. Levantine scarfs.

The tapestries, carpets, and shawls are, on the whole, singularly well selected for exhibition. They can be inspected without fatigue; several are type examples of fabric and arrangement of colour. We particularly allude to the oriental contributions; and the influence of oriental design generally in these sections of the Exhibition on our European draughtsmen and weavers, deserves the careful consideration of the visitor.

Besides the fabrics woven as distinct and individual works of art, we must notice some examples of piece-work woven for furniture purposes, and exhibited in the Royal Albert Hall. Piece goods.

Amongst the best fabrics for curtains are the brocaded terries, or terry poplins, a mixture of wool and silk, exhibited by Messrs. Fry, of Dublin. The designs are in relief, obtained by means of the

Piece goods.

grain of the silk. They are in one colour, both ground and design. The designs are delicate floral patterns, conventionally disposed, and so distributed as to keep the whole fabric quiet and even in tone. The varieties of brown, and the gold colours, are successfully treated.

Pim Brothers (4834) exhibit brocaded fabrics of the same make, carefully designed.

Figured shawl fabric.

We note an artistic fabric in the room in which these materials are exhibited—a piece of figured tapestry or shawl fabric, in black and gold coloured silk, by Clabburn & Co., (4803). The design is taken from that of Indian gold inlay, such as we find in the Kooft-work. Flowers and figures of men and animals are disposed over a black ground, in a silk that shines like gold.

Tapestry designs, after those of old "cloths of estate," such as we see in pictures of sacred subjects of the times of Dürer, are exhibited by Messrs. Gillow (4856). They are massive in texture, bold in design, and richly varied in a simple key of colour.

Less important designs on similar textiles are exhibited by Norris & Co.

Messrs. Gask have manufactured materials for hanging, by using spun glass in the weft of the fabric. It has the effect of shining gold thread.

Messrs. Philip Haas, an Austrian firm, have contributed mixed material, silk and wool, with great varieties of design, woven on the surface in the same way as on that of the terry poplins. They are in single tones of colour, and in mixtures.

Windsor brocades in varied designs are contributed by Messrs. Ward.

Stripes.

The Spanish exhibitors; and Norton Brothers, Huddersfield Chamber of Commerce, are among the contributors of stripe combinations.

Imitation shawls.

M. Bossi, in the lower room, is the principal foreign contributor of imitation shawls.

Many of these materials show careful study of good mediæval design; and the effect of direct copy from, or adaptation of, Indian patterns and colouring in the case of the shawl material exhibited by Messrs. Clabburn, will confirm what we have stated already—viz., the influence which our Indian productions are exercising, and may be expected to exercise in the future, on our textile fabrics at home.

REPORT ON LACE

In the International Exhibition of 1871.

By Mrs. HENRY REEVE.

It is intended that these Exhibitions shall afford opportunities of again applying to industrial objects those principles of harmony, beauty, and refinement, which were the distinction of a former and more artistic age; and if it be considered desirable that objects of utility should possess such beauty and elegance, it is surely essential that an article like lace, the purpose of which is solely ornamental, should display these qualities of art in their highest and best expression.

Artistic of lace.

From an early period of portrait painting, lace has commended itself to the artist for softening or defining the lines of dress and drapery, for producing those half tints, those delicate lights and shades which charm the eye in the transition from the gorgeous colour of the velvet or satin robe to the soft flesh-tints of the fair neck and throat; or when the age or sex made magnificence rather than grace the desired characteristic, heavier and richer laces had likewise a fitting place.

Use of lace in ecclesiastical vestments.

The Church of Rome has always used the fine arts to heighten the effect of her magnificent ceremonial; and in the dress of a cardinal we see a striking example of one of the uses of lace. The white linen tunic, worn over the scarlet robe, would, even to an untrained eye, offer a harsh contrast of colour were there not added to the tunic a deep margin of lace. Give to that ornament such beauty of design and delicacy of execution as are to be found in the best specimens of Italian lace, and the transition from crude white to brilliant red is not only rendered graceful, but the dress attains the highest point of artistic excellence and of pictorial

Use of lace in ecclesiastical vestments.

effect. The use of lace in the solemn services of the Church dates from a very early period. The linen napkin which veiled the sacred elements, as well as the coverings and hangings of the altar-table (itself sometimes embroidered in gold thread) were all adorned with lace, either worked in the cloth itself by the needle, as in the geometrical species, *point coupé*, or otherwise with a fringe of "bone" lace sewn on to its borders.

Early specimens still remaining.

There is at Chenonceau an altar-covering worked by Louise de Vaudemont, wife of Henri III., and to her Jean le Clerc dedicates his "Treatise on Lace," now in the Bibliothèque de l'Arsenal, at Paris. (Printed 1587.)

Examples found in portraits, etc.

It is by studying the design and details of pattern in portraits and in such museums as the Hôtel Cluny and the South Kensington Museum, that a taste for lace is formed; and we have found so much amusement and interest in the study that we venture to quote a few examples by way of illustrating our meaning. In almost all the historical or family portraits of the reigns of Mary, Elizabeth, and James I., by Zucchero, M. Gerrard, Janssen, Jamieson, and the elder Mytens, there are specimens of lace so accurately painted that the pattern is ready for working. Some knights and dames, as the Cliffords (Earls of Cumberland), at Knole and Longford Castle, Ferdinando, 5th Earl of Derby, and Alice Spenser, his wife, at Knowsley, Lady Betty Pawlet (Picture Gallery, Oxford, by Mytens), Sir Anthony Poulett and Catherine, his wife (Hinton St. George, by Mark Gerrard and Hilliard), seem to have had a special taste for the *point coupé*, now called Greek lace, but which is more accurately to be described as a geometrical design worked in apertures (*pertuis*) cut out of a piece of linen. The corners of the kerchief that a certain Jane Dormer, Duchess of Feria, holds in her hand are thus worked; and as Jane was the most trusted of Queen Mary's maids of honour, and wife of the Ambassador of Phillip II. at the important moment of Elizabeth's accession, we have an accurate date for this production. The invalid cap of the Emperor Charles V. is bordered with this kind of lace. So is the pillow-case of Henri Quatre (Hôtel Cluny), said to have been "sewed" by his Mother, Jeanne d'Albret. Queen Elizabeth had in her time set the example to her Court; and the cost of the *point coupé* on her portentous ruffs and sleeves must have made a serious deficit in the purse she loved so dearly. Rubens, in painting his mother's portrait (Dulwich Gallery), is careful to give the exact tracery of the lace on her pocket-handkerchief; while Vandyke's fondness for a particular style of pattern has furnished us with, as it were, a "household word."

Examples found in portraits, etc.

A little lace-trimmed shirt of Charles I. was exhibited at South Kensington, and deft indeed must have been the fingers which worked its ornamentation. The tailors' bills of the Merrie Monarch (his son) show, as might be expected, a nice taste and a fair expenditure in lace, especially of gold and silver:—

"To W. Gostlin—
17 yards Flanders lace.
34½ yards of broad and narrow purl'd point raised lace.
7 yards narrow lace for sweet bagges.
16 yards broad gold and silver lace.
30¾ yards of gold and silvered lace purl'd." (Inventory of Charles II., "Harleian Library," 6271.)*

William of Orange knew the value—and paid it too—of Flemish point. Queen Anne's Alençon ruffles and head-gear bring us down to well-known and much prized specimens.

The collection at the South Kensington Museum.

This collection, though only recently formed, contains many useful examples, and we would suggest to collectors and amateurs that they would be rendering it a great service if from time to time they would lend to it specimens illustrative of a distinctive school or period.

Revival of taste for lace in France.

It was the collection at the Hôtel Cluny that first brought about the revival of a taste for old lace in France; and, thanks to the intelligence of a French manufacturer, Madame Gandillot, and to the discrimination of French ladies, a very high degree of excellence in *point coupé*, and in *point compté*, has been already reached; while thousands of hands in the Vosges, as in Paris, have found employment in this art, and in its sister work of weaving both black and white lace on the pillow. We may remark, in connection with all these fabrics of lace, that the eyes of the workers are far less tried by them than by those which are made with very fine thread, as the points of Brussels and Alençon, etc.

Manufacture in Ireland.

In this country the efforts of some ladies have been turned towards a similar object, and we propose to direct attention in this Report to the specimens sent by them to this Exhibition. It is already time to turn from these reminiscences and gleanings to the productions of the present day, and to the rules which should

* There is a curious little book, 2320, Harleian Library, written at the close of the 14th century, which gives instructions for making such laces as were in fashion—a broad lace, a thynne lace, a lace endented, a pykke lace, etc. There are directions for holding the "bobbys," the fingers being named by letters. "The thom is O," etc., etc., etc.

alike guide those who wish to make, and those who wish to wear, good lace.

Need of cultivated taste in buyer as well as in producer.

"The want of general culture in the customer creates the inferiority of the thing purchased by him."* So says a modern thinker, and it is, therefore, plainly for the interest of art that the customer should not only perceive a difference between good and bad lace, but that he should be able to point out the defects of design, of execution, or of material, and require that, in each of these particulars, attention should be given to the special use for which any kind of lace is intended.

True principles of design.

If the design consists of arabesques, the curves should flow on to their natural termination, and not become stunted or distorted because the designer has selected a pattern too large for the space, and will not take the trouble of altering and adapting it according to the rules of art; and care should always be taken that the angles of junction in such scrolls are neither too sharp nor too obtuse. When natural or conventional flowers and foliage form the basis of the design, more must not be attempted than the nature of the material and of the work admits of treating harmoniously. It does not follow because a flower or a leaf is beautiful on a hedge-bank that it will look well on a lace flounce; and, in the same way, stitches that look pretty and curious enough in a sampler, if badly selected and too rapidly changed, will produce a ruinous confusion in the work they are intended to adorn. In those kinds of lace which consist of a ground as well as of a pattern, there must be harmony between the texture of the pattern and that of the ground, and purchasers would do well to accustom themselves to the use of a magnifying glass, and with it to observe both the number of threads in the square inch and the number of twists given by the bobbins in each mesh, in the way that manufacturers have to do in classifying cambrics and holland of very fine make. In the execution of the design, not only is it necessary for the worker to follow with care the line of curve, or cusp, or angle, the swell of the bud, and the bend of the leaf, but he must possess the technical knowledge how to give to that pattern its truest effect, whether by needlework, as in Greek lace, Venice point, Alençon, Argentan, etc., or by bobbin and pillow-work, as in Genoa point, Flemish, Honiton, Chantilly lace, etc.

The material must always be flaxen thread, smoothly spun, evenly and firmly twisted; the size of the thread, of the stitch, of the needle, the weight and number of the bobbins, and of the pins,

* Helps' "Conversations on War and Culture," page 173.

must be carefully and conscientiously adapted to the pattern, and to the style of the lace. We say *conscientiously*, because a quantity of poor debased lace is produced by working with less than the proper number of bobbins required for the rendering of the pattern, or of the ground. If customers will not qualify themselves by culture for becoming judges of lace, the standard of excellence will never rise. Material.

The specimens of lace sent in to the Exhibition of 1871 are neither numerous nor of varied kinds. We hope in future years to welcome many more such contributions, and we desire to encourage many other contributors. The very high prices obtained by dealers in old lace (200 guineas for a flounce of Venice point) ought surely to stimulate the efforts of the present age. Why should not such a prize be as attainable in the 19th as it was in the 16th century? France and Belgium have the monopoly of the fabrics made with the finest thread, such as those of Alençon and Brussels. England is apparently satisfied with the bobbins of Devonshire and of Buckinghamshire. We ask that Irish needles shall emulate those of Italy, which three hundred years ago set so noble an example of a purely artistic and very lucrative manufacture. We will now direct attention to those specimens in the Exhibition which deserve notice from their merits, or which may serve to illustrate certain rules of art. Examples in present Exhibition.

3818 and 3819 deserve high praise; the geometrical patterns being excellent, and the work so firm, smooth, and accurate, that it will bear comparison with the best old lace of the *point coupé* school. These two specimens are worked by Katherine Donald, in the schools under the patronage of Mrs. Keane, at Cappoquin, Co. Wicklow. 3816 is a specimen of Rose point. The intention is good, but either the pattern was not carefully enough drawn, or the making was faulty—angles which should be sharp are blunt, and the *raised* border is clumsy. We make these remarks with the view of urging to higher efforts pupils who have already displayed so much intelligence and aptitude. 3835 is a specimen of English point lace so good in every respect that we think Englishwomen will do well to study and to imitate it. Miss Wormald sends two specimens; the point d'Alençon (3841) is very delicately worked, and is very beautiful in all respects, except in the design of the fern leaf, which is too heavy and too large for the pattern and the ground; 3842 is described as "Spanish point;" the border line is not worked over, which gives it a raw, unfinished look, though there are some precedents for this omission in old lace. Here we observe too great a variety of From England and Ireland.

From England and Ireland.

stitches, thus producing a sampler-like effect; the veining of the leaves is carried to excess in parts, while occasionally in them a diaper pattern is introduced not in keeping with the branching of true arabesque design. The fringed linen border belongs to cut-work, not to "Spanish point." The narrow strip of guipure is extremely good. Miss Wormald does so well that we are sure she can do better, and that she will. There are no specimens of linen grounded lace (the so-called Greek lace); none of darned on netting lace, although both these kinds admit of artistic design, and can be adapted to various uses, and we know they are fabricated in Britain to no small extent. We now pass from needle-wrought lace to those kinds made with continuous threads by bobbins, generally known as "pillow lace," because the pattern is fastened to a pillow or cushion, on which the bobbins are moved, pins determining and directing the lines. Devonshire, content with popular approbation and popular custom, has made fewer efforts on this than on previous occasions. 3839 is a very elaborate "chalice veil," hardly acknowledged, however, as being "ecclesiastical art" by the church for whose use it is designed. It is a *tour de force* in execution, we admit; but the ground is not well chosen for throwing up the pattern, and the attempt, by superimposed work, to give the effect of plumage is not truly artistic. 3840 is a handkerchief border; the "motif" or idea is an arrangement of the Rose, the Shamrock, and the Thistle—our national emblems. The artist has, however, neglected that "*consistency of its conventions*" which is the first principle of style, and has introduced a large convolvulus flower and a branch of fuchsia. The work is very good—why should there not be a purer design? 3823 and 3824. Sarah Prince's bobbins have been plied to good effect; there is here a tenderness and delicacy in the working which are very charming; the designs are good, if not absolutely faultless, and the execution comes up to the highest standard. We always think it a mistake to attempt to represent figures with the limitations imposed by bobbin-working; but there are examples which naturally tempt or attract good lace-workers. The bastard tape-work, which is so much in vogue at the present time, is not without representatives in this collection. The patterns in our specimens are too often confused and weak; they are taken from bad models, and have not been improved in the copying or working. M. Hittorfs, in his "Essay on the Arabesques of the Ancients," lays down the following principles as those which should guide the artist:—"That immoderate multiplicity fatigues the eye; that excessive copiousness causes many objects to be condemned as useless; that unity of conception, proportion of parts, and symmetry in the principal decorations, are indispensable

laws, never to be neglected." But in these kinds of "imitation lace," even if the design be well drawn, their fabrication, by the intermixing of pillow-made tape and needle-set stitches, does not produce an artistic or satisfactory result, and we consider the specimens here exhibited involve so great a waste of time, trouble, and material, as to disqualify these peculiar fabrics for receiving any public encouragement. There is, indeed, one point of view from which we can consider this style of work with satisfaction—viz., that it directs attention to the making of lace-tapes. Those exhibited by (3834) Emma Roberts, Ampthill, are so firmly made, and show such knowledge of what can be done in this way, that we strongly recommend her to attempt making the real pillow-tape lace, using the well-known Genoese patterns, such as branches of coral, scrolls, etc. This kind of lace does not require very fine thread or very numerous bobbins. It is handsome, durable, and adapted to many kinds of dress.

From England and Ireland.

France limits her display of lace to a few specimens of point d'Alençon, purposely excluding all such lace as may be considered to belong to industrial art rather than to fine art—or, rather, postponing to another year such specimens of lace as do not attain to the very high standard prevailing in France. We hesitate to criticise these exquisite fabrics. The grouping of the flowers; the arrangement of the festoons and tendrils; the outlines accurate, yet not hard; the balance between pattern and ground—all these are admirable. Yet in one flounce-piece there is a band separating the garlands, on which occurs a wheel-design far from harmonious; and the border or edge in another piece appears somewhat too heavy for the rest of the lace. All are of the finest thread, and of the most minute and laborious workmanship; and we call especial attention to a robe of point d'Alençon as a marvel of raiment produced by needlework.

Examples from France.

Belgium sends a good many specimens of Brussels point, but very few of Mechlin lace, which is so well worthy of being represented, as it is perhaps the softest and most "flattering" wear of any of the laces made on the pillow. It is the custom now to mix in the same piece of lace Brussels needle-point and Brussels bobbin-work, and to give to some of the flowers raised petals; but we cannot think a right standard is arrived at in these innovations. The patterns, again, are often too elaborate; and the details suffer from over-elaboration, confusing the eye by the mixture of lines and of stitches. The black lace in the Belgian Gallery, as well as that shown in the English Gallery (but of foreign make), is by no means equal to some specimens which were shown

From Belgium.

From Belgium.

at the Paris Exhibition in 1867. We call to mind a certain black lace shawl—the pattern bunches of roses and leaves—in which the lights and shades were given with the most exquisite effect, in spite of the inherent difficulty of having to produce such delicate gradations with a transparent ground. An artist should bear in mind that it is necessary to select such flowers as will admit of the technical treatment required by a lace pattern; and we think in much of the black lace the ambition of the artist to procure novelty has resulted in the choice of flowers and foliage not fitted for the more important and imperative object—viz., harmonious design.

Designs by students in art schools.

Before concluding this Report it may be appropriate to allude briefly to the designs for lace exhibited by the students of the Science and Art Department, South Kensington. Some of these designs show taste and skill; but we doubt if the artists have sufficient acquaintance with the different kinds of lace, or that without special study they can know the technical difficulties to be overcome, or the peculiar capacity for ornamentation of each kind.

Cesare Vecellio, who published his designs for lace-work in 1593, studied "punti tagliati," "punti in aria," "punti à reticello," and knowing all the mysteries of needle and of bobbin, was able to set before the "Nobili e vertuose Donne" of Venice models such as we would fain see used by noble ladies of the present day, to form their own taste, and to direct the efforts of the schools in which they take so warm an interest.

On the choice of lace.

In conclusion, we desire to make a few remarks, and to offer a few suggestions on the choice of lace. No woman with refined taste would use the same lace for trimming her dress and her dressing-table. The veil which half conceals the bride must be of the softest and lightest fabrics, such as Brussels and Honiton lace. The heavy Venice point must be used as a border, not as drapery, and the appropriate back-ground is silk or velvet.

The old Valenciennes and Flemish makes of lace imitate linen when seen at a little distance, and therefore harmonise best with morning dress and with neutral tints, as the refinement and delicacy of the material and execution are lost, and the pattern disappears when seen by candle-light.

The consideration whether lace is to float or to fall—whether a deep border of distinct pattern is to be seen on the dress, or whether, arranged as fringe, the lines of the pattern are lost—should be present to the mind in selecting lace; and we end as we began, by urging the importance of "culture," and by pointing out the ample scope for the display of culture which lace affords.

REPORT ON EMBROIDERY

In the International Exhibition of 1871.

By the VERY REVEREND CANON ROCK, D.D.

Of those decorative arts more immediately employed for personal adornment, these two—lace making and embroidery—have about them many features so thoroughly alike that they, at first sight, would seem to be of the self-same stock, yet there is a wide difference between them in the causes of their origin.

Origin of embroidery.

In the early stages of society, while the male portion of a tribe was out in the fields and the woods in search of food, snaring birds or slaying animals, with arrows barbed with chipped flints, or on the water, catching fish with lines, having for a hook a crooked bone, the women, when the domestic duties of the hut were accomplished, following their female instinct, filled in their leisure hours by employing their fingers in the lighter works of personal adornment. As soon as they began to weave their coarse woollen stuffs, and wear them, they found that, at both the ends of the warp, the threads thrown across it by the shuttle dropped down, and the ends of the warp itself became ravelled. To hinder this, the ready and obvious way was to knot each strand in the warp, thus, as those ends soon came to be untwisted, they shaped themselves into a fringe. In time the threads of the fringe, worked by the application of the needle into various shapes, became a rude form of what is now called lace. At last so elaborate and elegant did such fringes become, and so much admired, especially in linen and cotton textiles, that the working of them became a distinct article of industry. Whether such a species of ornamental needlework

Origin of embroidery.

first sprang up in Italy, particularly at Venice, or in Asia among the Chinese, is a question which now cannot be satisfactorily determined. But, assuredly, China, the land where, of old, many curious and most useful inventions first saw the light of day, and even now a land famous for its beautiful and elaborate works and productions, can show in this Exhibition needlework quite equal to, if not finer than, any modern needle could bring forth in Europe.

Progress in the 14th and following centuries.

Somewhere about the second half of the 14th century, the old method for hindering the waste of the warp by knotting its threads, and then platting them into squares, to be filled in with needlework, fell into disuse, and two new branches of industry sprang up—fringe-weaving and lace-making (properly so called), each product to be sewed on by itself: the first, chiefly to the textile employed for furniture; the second, to the articles of personal attire. The earliest fringes were always made to consist of two, very often of several, colours, which were set to follow each other in regular succession, so as to show the various colours of the different threads put into the weaving of the textile, and thus kept about them the history of their own origin. But now, fringes are almost always of one single colour, and quite unlike, in colour and material, the textile from which they hang. To put up any such sort of fringe, sometimes ugly in itself and unseemly, is a kind of artistic falsehood, belying the real origin and purport of this adornment. During the greater portion of the 16th century the place of real lace was supplied in linen articles of personal dress, with slight embroidery, wrought in coloured thread, black or blue, as we find shown in the portraits of men no less than of ladies of that period. Later we shall say a few words on the so-named, but mis-called, Greek lace. While the employment of lace-work has been to hem and border textiles, embroidery has laboured to spread them over with imagery of every kind and after various fashions. In an International Exhibition such as this, we are annoyed at not being able to find anything to which we might point, as showing that our countrywomen of the present day have inherited from their English sisters that love for embroidery as well as the ability in executing it in all its branches, which once rendered this land, from early Anglo-Saxon times, so celebrated among all nations. Scant as is the collection of needlework done by English hands in this Exhibition, smaller still are the varieties of stitchery that for centuries have been, and are yet done by English taste and ingenuity. Network may, by the darning process, be easily wrought over with all sorts of figures, and applied to the use of window curtains and various other domestic ornamental appliances. This kind of embroidery was once a great favourite among us; but here it has no representative.

So-called "Greek lace."

At times we hear ladies talk of a sort of needlework which they call Greek lace. This so-named Greek lace consists of pieces of linen out of which threads have been drawn and the spaces thus made have been wrought into various patterns by the needle. Now there is not a country gentleman among us, of family, who, were he to peep into the cupboards and store-rooms of his old house at home, would not find fine samples done by the fingers of his great-grandmothers of this old English work now mis-called Greek lace; and only last year a fine specimen of it was turned up in the parish chest of Hesset Church, Suffolk, where it had lain hidden and forgotten for more than three hundred years.

Ecclesiastical embroidery from Belgium.

A small frontal here should be noticed. The ground is of white silk, well powdered with conventional flowers and leaves, worked in bright coloured different silks, and streaked with golden threads, after the style seen in MSS. of the first half of the 13th century. In the centre is an altar, at the foot of which are two groups of figures; these, as well as the two bands at the sides, are admirably embroidered in gold and coloured silks. Above this small and beautiful frontal hangs another one; white, prettily ornamented, and noticeable for having a fringe at bottom, and that not white, like the textile of the frontal itself, but of several colours; lower still are two ritual appliances—a pall which is used to put on the chalice, and a burse within which the folded corporal is carried to and from the altar. Both these beautiful specimens of embroidery are foreign productions; the one from Aix-la-Chapelle, the second from Bruges. Particular attention should be given to a small work, No. 3909, a sunflower, with a winged insect by it, both embroidered on a simple piece of green serge, by Mrs. Charlotte Sotheby. In this piece, which is admirably executed, we may witness what may be so effectually done, and with such scanty materials, by any one who follows nature with exactitude, accompanied by good taste and ready fingers. The same lady displays a similar success in her sideboard cloth, No. 3910.

Cut work

Of our old English *Opus Consutum*, or Cut-work, there are here two specimens, No. 3929*b*, which call for an especial notice. Both of them may claim much praise, not only for the manner in which they set forth their subjects, but for the beauty of their execution; and they who may like to learn about this olden class of embroidery, will find its method at pp. cii., ciii. in the "Introduction" to the "Textile Fabrics in the South Kensington Museum." Patch-work, though the lowest family of cut-work, may be turned to much advantage, as a very pretty, at the same time

Cut-work.

economical, ornament in domestic and other kinds of furniture. While it asks for little skill, it may be done with even less expense: the small shreds of any textile—be it velvet, silk, worsted, or canvas—will do; and any little girl to whose hands the use of a pair of scissors can be intrusted, and who knows how to use her needle, may execute it. To this long-known sort of ornamental work the new name of "Sabrina-work" has been applied; we should be glad to be informed as to its etymology.

Usefulness not to be overlooked for the sake of ornament.

Among the embroideries should be particularly noticed the large cushion, as a good exemplification of the main principle which should guide all decorative art, that in any of its productions complete usefulness should never be overlooked for the sake of ornament. This brown silk cushion is trailed all over with branches bearing leaves and flowers, wreathed round a bird. The nicely-wrought embroidery is everywhere very low, and thus admirably fits the cushion for use on any occasion. If taken to church for the ecclesiastical dignitary to kneel upon at parts of the celebration, he would not feel a moment's pain from any rough, broad welts of golden embroidery beneath him; whilst in stately observances the high-born dame might rest her bare arms and hands upon it without dread of being scratched and scarred. The large light-blue silk cushion is prettily sprinkled with lively-figured flowers at its four corners, but the rich and heavy embroidery which surrounds them unfits it for comfortable use.

Oriental embroidery.

India has at all times avowed her love of gorgeousness in personal attire, and the articles she sends to this Exhibition still show this predilection. Though bringing into use, especially on her thinner textiles, a great deal of tinsel, few of them look tinselly; and the tasteful application of foil, tinted in various colours, often lends great beauty. Those long deep borders and large centres embroidered in gold and silver, which we see on many of the pieces here, far from being mere barbaric specimens of art, are wrought with much skill; and the admirable contrasts made by the mingling of silver with gold, as well as the happy way in which the diapering is managed, should arrest the attention of European embroiderers. As objects for particular attention we may instance those two rich and splendid pieces—one on green cloth, the other on green velvet (Nos. 3861*b*, 3861*c*). The artistic judgment with which the golden embroidery is tastefully encircled by finely-executed scrolls done in silver, while the bright scarlet flowers lend and receive back brilliancy from the golden ground out of which they are made to sprout, as well as the admirable diapering itself of the gold, ask for, and ought to win, our notice.

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Japan.

The light blue garment from Japan is prettily embroidered with flowers, and the small piece of embroidery on murrey-tinted silk, showing birds in bright colours, is the only specimen here of anything done in what is known as the Chinese stitch.

Vegetable fibres used for embroidery.

Flax and cotton are not the only vegetable productions employed in weaving all the finer and thinner sorts of textiles. In the hot regions of both hemispheres a tribe of plants, known among botanists as the bromelia, grows in luxuriant plenty, and far more than any of its congeners abounds in thin, strong fibres running through the leaves. As in their preparation the stems of flax, so the longest leaves cut off from the bromelia, are for some time steeped in water till the green pulpy matter, or, as it is called the parenchyma, may be easily scraped away with a sort of blunt wooden knife, laying bare and clean the leaf's fibres, which may be further split into very thin filaments, ready to be woven and fit to be employed for the needle in the finest embroidery. As the ananas or pine-apple is classed among the bromelia tribe of plants, its English name is taken as a proper designation for the whole race. Hence, we designate as such every article made from leaves of a bromelia of any species. Good specimens, both of this peculiar tissue itself as well as of the beautiful and finer sorts of embroidery wrought with its thread, are well shown here. This embroidery is done by Asiatics, in the East Indies and China, as we may see in No. 3814. Though coming from the Philippine Islands, the work upon this garment, probably a liturgical alb, is so like that upon its smaller neighbour from China, that the embroideries of both, we make no doubt, are Chinese.

Need of skill in drawing and knowledge of botany.

What must strike an attentive observer of our English-wrought embroideries, both in the specimens of embroidery proper, as well as in the twin-sister lace, is, that the designers of those examples needed a little more skill in drawing, and wanted some slight knowledge of botany. To succeed in any branch of decorative art, it is as requisite to be able to draw as it is to know, for all the usages of life, how to write. Had the Irish nuns, who sketched the pattern of a dress wrought in their school by orphan girls, and presented in gratitude to the late Countess of Shrewsbury, had even a smattering of this knowledge, the design on the lower border of the garment would not have shown such excrescences in leaves and flowers. Those, too, who drew out the patterns for so-called Sabrina work would have remembered that many flowers have more or less than five petals, and that for leaves, beside the lanceolate and oval, there are, at least, twenty other shapes, many of great beauty in their outline.

REPORT

ON THE

PRESENT STATE OF DESIGN,

As seen in the Manufactures in the International Exhibition of 1871.

By RICHARD REDGRAVE, Esq., R.A.

Former Reports on design

On the first International Exhibition of 1851, and on the recurrence of such exhibitions, both here and in France, I was called on to report on "Design Applied to Manufactures." On this occasion I am again requested to undertake the task. It is to be expected that this Report, ranging as it does over the same field, will repeat matter contained in those already alluded to; and of necessity, since principles of taste, derived from the study of the best works of the past, cannot be changed either in favour of fashion or prejudice.

There has been of late a renewed controversy on the subject of "Principles of Design;" to the necessity of such principles I have long ago committed myself,* and in my Reports of 1851, and more especially of 1855, many of these have been formulated. There is danger, however, in enforcing principles too rigidly or too dogmatically; they should be our guides, not our masters; our go-cart in youth, to be laid aside as soon as we have strength to walk in our own path. Rules can never trammel true genius, which soars away to make new precedents; yet even genius, however errant at times, recurs to the normal and central truth; while it is the misfortune of dullness to deride, as contrary to rule, excellence, which it has not the wit to achieve for itself. It has already been said that what are called principles are merely those facts in nature, or in its application to the arts of design, which are to be found underlying the best works of the greatest masters; and as, on the one hand, he surely would be thought foolish who, casting aside all

* "The Necessity of Principles in Teaching Design." Chapman and Hall, 1853.

Former Reports on design.

precept and all tradition, should begin his art for himself, so, on the other, would be the designer who copied only the works of others, without endeavouring to enter into the principles on which they were produced.

From the serial arrangement of these International Exhibitions, the present Report does not take so extended a range as former ones, the collection this year consisting of woollen fabrics and pottery only. The design applied to these manufactures will, therefore, principally engage our attention; with, however, a few references to manufactures in other sections, which, having been admitted rather as objects of art than of manufacture, should not pass unnoticed, since the principles of design relating to them are general in their application.

Woollen manufactures: carpets.

In the Report on Design (1855, p. 35, section 113) it is remarked, with reference to carpets, that "The utility of such works would suggest their being quiet and unobtrusive in their general decoration, even if rich and full of colour. All violent and startling contrasts, either of form or colour, which would draw the eye to them, should be avoided; and *pictorial* imitation would seem the more out of place the more excellent it is, in a work to be trodden under foot and intended rather to support the general effect and richness of the apartment than to command attention for itself." And, again, "flat treatment should be observed for that which covers the ground we tread on." Such were the principles enunciated in presence of the works of some of the greatest designers of France, executed in the richest materials by some of the greatest French manufacturers, and there seems to be no reason to alter them on the present occasion. Indeed, notwithstanding the controversy that has taken place on the subject of these rules, it is most satisfactory to find how gradually they have been accepted and how extensively they have been adopted in the manufactures exhibited on this occasion. While most of the carpets are, as a whole, in good taste, there is, at present, on the walls of the Exhibition hardly one which can be called absolutely vicious in design; indeed, in many the faults arise from too great subserviency to these laws; to want of piquancy, from want of contrast, and from too subdued colour, rather than to their excess; the quiet and repose having, in some instances, been obtained at too great a sacrifice of contrast. Without at all wishing to uphold Indian treatments as the only desirable ones for these fabrics, it is certain that in most of the Indian carpets exhibited there is an instinctive sense of propriety and attention to good principles. Examine No. 6131, a Madras carpet, exhibited by Vincent Robinson & Co. First, it is to be noted how good the proportion is between the

carpet and the width of its border. In most of the British carpets designed on like flat principles the borders are too narrow for the body of the carpet. Then, again, in a well-designed carpet, there should be contrast between the centre of the carpet and its border; a rule little observed in those of English design. In No. 6131 this contrast is obtained, not only by a border darker than the body of the carpet, but also by ornamental details, smaller and more closely treated and with greater fulness of colour than the design of their central portion. Such a treatment may be reversed, and the details of the centre be smaller than those of the body, and its colour lighter, or variety may be obtained by other methods; but when there is no such contrast (as in the Wilton carpet, 6141, exhibited by Crossley & Sons, otherwise a well-designed work, with a suitable proportion of border), the result is indistinctness and want of piquancy. It is worth while, before passing from the front of the carpet 6131, to examine the beautiful sobriety of its colouring; reddish, bluish, greenish tones of colour are used —not red, blue, and green, which it seems the sole effort of some manufacturers to obtain. The very ground of the centre, of unbleached rather than of bleached wool, delights the eye of the painter; the ornamental details, flowing agreeably over the surface and every now and then gathered into a geometrical form —geometrical, yet not too strict and rigid, serving to give largeness to the design, at the same time that the colour is thoroughly dispersed—are lessons to be noted, showing sobriety combined with cheerfulness, and warning us against too rigid an adherence to the rule of subdued ornamentation. Woollen manufactures carpets.

Of carpets designed in other styles than those wholly on flat principles or derived from India or Persia, there are at present few. There may be others when the French goods are exhibited, as it is mostly from that school that the florid and picturesque treatments arise. The only specimen of a Louis Quinze carpet is 6158, exhibited by James Templeman & Co.; yet even this is so pervaded by the new taste, that the vices of the style are subdued, and the result is a pleasant breadth of colour, and absence of naturalism in the details.

One of the most ambitious designs in this section is that carried out in 6151, an Axminster carpet, exhibited by Turberville, Smith & Sons. Though the details of the ornamentation are clever, the design, as a whole, cannot be considered successful. It is too pronounced, and yet too intricate; thus it is difficult to define what is the general colour of the ground of the carpet and of its inner border, or to trace the main geometrical constructive forms in their intersection with one another and with the inner border. These geometrical constructive forms enclose a white ground in the centre

Woollen manufactures: carpets.

of the carpet, and certain large spaces filled with a white ground occur also in the inner border; but, from the want of coherency alluded to, they appear as unconnected patches in no apparent relation to the white centre: thus, as a whole, the design is confused and fragmentary. Had the green foliage and its ground been carried throughout the inner border instead of introducing the white spaces, the effect would have been far more satisfactory.

There are a few carpets exhibited which, from the rigidity of the main lines of the ornamentation and the smallness of the details of the filling, have the appearance of floor-cloth; a great fault in such fabrics, as suggesting a meaner rather than a richer material. No. 6145, though the work of one of our eminent designers, is faulty in this respect.

In the same gallery with the carpets is the collection of the pottery of all nations.

Pottery.

The pottery which principally embodies design may be classed as—

Tiles for floors and walls, and architectural pottery generally.
Domestic utensils.
Ornaments.

It is obvious that many of the laws which should govern designs for carpets are equally applicable to floor tiles. Thus all forms which, either separately or by combination, give the appearance of inequality of surface, are even more objectionable when introduced into tiled floors than in carpets, from our sense of the greater rigidity and hardness of the material. Again, patterns that are extremely pronounced or contrasting are objectionable in both materials. The best taste seems to be to cover the general surface of the floor with tiles whose ground is a simple colour; or, if of varied colours, they should be non-contrasting as to light and dark, to give repose. These masses may be occasionally varied with grouped patterns, and have ornamented borders. The attempt to make each tile a decorative unit, and to multiply it over the whole floor, is rarely satisfactory, however it may be sanctioned by old precedents. Forms of this kind, recurring over large spaces, are likely to prove very tedious to the eye. After all, much depends on the architectural combinations designed by the architect for laying out the whole floor, since tiles, simple in themselves, may be combined so as to have due quiet and repose, or to show all the faults arising from over-contrast either of form or of colour. It is to be remembered, also, that the decoration of the floor must depend upon the use of the apartment. Large, and somewhat empty, entrance-halls, call for more pronounced treatments; aspect and use also must determine whether the floor should be cool or warm

in its colouring, light or dark in its tones; and the numerous works exhibited by the great tile makers, both of single tiles and of well-designed borders, suffice to give ample scope to the architect to group and combine them in good taste. The decoration of these goods has greatly advanced in fancy and variety within a few years; and many of the borders are flat in treatment, and in good taste. Pottery.

The treatment best adapted for wall tiles differs, in some respects, from that best suited to floor tiles. The specimens exhibited in this class are very numerous, though in some cases they seem very unsuited to their purpose. The design of each unit tile may in itself be satisfactory, yet, as has been said, in their combination, the constant recurrence of some too prominent form of ornament is likely to prove disagreeable. It is even more likely to do so on walls than on floors. On walls breadth and quiet, (either arising out of the suppression of violent contrasts of light and dark, or of forms which are too rigid, and do not flow into one another,) must be more desirable than even in the decoration of floors. A strong expression of lines, arising from the recurrence of ill-designed tiles, is always objectionable, the more so if they tend too obviously in a horizontal direction; this lowers the apparent height of low rooms. Strongly expressed diagonals are almost equally unpleasant—diagonals tending only in one direction more particularly so. There is, in many respects, a cleverly designed English tile in Messrs. Minton's collection, ornamented with a branch of orange blossoms. It is, however, spoiled by the introduction of large masses of blue in circles on the white ground, while the foliage, which crosses both white and blue, repeats, and would form a line across the room at an angle of 45°, with the floor in one direction only. Covering a wall with such a pattern must make the objects in the hall or room appear out of the upright, while the blue bull's-eyes would, to most people, be intolerable. As in floor tiles, so in those for walls, it seems preferable to use those which show their natural ground, whether white, red, green, or tinted. Some of Maw's tiles, exhibited by Simpson & Son (No. 7 in their list), and forming part of a reredos, with delicate linear ornamental forms, on the natural red ground, are good examples; the rather objectionable combination of square and round forms in the lines of their decoration, being hidden by the ground, is almost overcome. There are many tiles, exhibited both by Minton & Co., and Minton, Hollins & Co., derived from Persian examples; some are open to the above objections, but generally they are designed on sound principles; in them the white ground of the material is preserved, and the recurrence of the pattern, necessarily arising Pottery: wall tiles.

Pottery: wall tiles.

from the repeats of the tiles, is so skilfully managed by the flow of the ornamental lines, that the eye is led over the whole wall. The luminous colour and graceful form of the ornament, remove the sense of the tedious repetition of numerous small pieces. The best of these tiles ought to be carefully studied, not with the object of the mere reproduction of Persian designs, but to arrive at the principles of the original designer. The combinations of form and colour they display (although in the reproductions of our tile-makers some of the finesse of the originals is lost) are delightful to the eye; and while it may be said that they are more suited, from their lightness, for a hotter climate than for our own, by using different tints for the body of the tile, greater fulness may be obtained, without falling into the papier-mâché or japanned-ware surface, which is so objectionable in many of the tiles exhibited. Some of the tiles manufactured by Maw & Co., and exhibited by Simpson & Son, have much merit in their design. The rosette pattern (consecutive No. 7), consisting of small rosettes in low relief, and with broken tints of colour, has a rich and quiet textural surface, hiding the recurrence of the pattern with good effect. The same, also, may be remarked of the borders, (consecutive No. 12), which are in good taste, and, from the treatment of the colour, would not have too strong expression when on the wall. The opposite is the case with the tiles filling in the mantel-piece, exhibited by this firm; the clever design, it is said, of Mr. J. Lonsdale. The strong contrast of the blue ornament with the white ground of these tiles would quite over-crow the objects of *vertu* the shelves are meant to accommodate. The tiles for their other mantel-piece, embodying the sentiment of "Welcome is the best dish," are more quiet and in better taste. Many of the objects exhibited by this firm, and manufactured by Maw & Co., deserve attention; they are the work of Mr. Elden; and it were to be wished that in all cases the talents of designers had had more complete recognition in this Exhibition than has been accorded to them. This recognition of talent is wanted to secure the interest of the artist in his work, and when given it will benefit both him and the manufacturer. The absence of the names of artists who have aided in the production of works is the more to be regretted on this occasion, since there seems to be a growing inclination among men of high rank in their profession to aid our manufacturers, and to take a part in decorative art. The liberal way in which the wishes of the authorities at South Kensington have been responded to by artists, and the important works that are resulting from their assistance, are instances; as are also many objects in the Exhibition itself. Manufacturers, when they obtain the help of high professional talent, are only too anxious to make it known; but artists, who have not yet

obtained public repute, have their claims postponed in favour of the manufacturer, or even of the mere tradesman. Pottery: wall tiles.

A tile painting of an Apostle, with a background of gold mosaic, exhibited by Simpson & Son, is designed in good style; but it is doubtful if the combination of tiles, as a surface for the painter's art, can compete eventually with the new method of painting on hexagonal tesseræ, the invention of Messrs. Minton & Co., and of which there is a specimen (a Falconer, painted by H. S. Marks, A.R.A.,) in the Towers of the British Gallery appropriated to fine art.

ARCHITECTURAL POTTERY.—It is hardly possible to estimate the proper application of design to the great body of works exhibited in this class, since they should be judged of almost wholly in relation to the structures of which they are to form a part. Their design is essentially but a detail of the whole idea of the architect; and to examine merely a baluster, a medallion, a patera, or a portion of a string-course is, if in a lesser degree, to take a single brick as a specimen of the house. Thus the portion of the terra-cotta cornice of the "Wedgwood Testimonial" has its value as a work of art only in relation to the whole building; and even the rich and fanciful columns by the late Mr. Godfrey Sykes, though the large style in which they are treated may be admired, can only be properly judged of in their place as a part of the architectural design of the South Kensington Museum. If this is the case in works designed for a special position, what consideration can be given to key-stones, string-courses, balusters, pateras, brackets, vases, medallions, and shop properties of every description prepared for the building trade, to be inserted at pleasure in structures of any or of no style to add to their pretentious character? such can only have a place in a report on the *material*, on its colour, hardness, durability, etc. This classification allowed, there are few objects claiming a separate notice, and none which call for any praise. The constructive forms of many of the works exhibited are, it is true, to be traced back to the antique, but so vulgarised in proportion, and in their curves, as to be wholly spoilt. Then the ornamentation of these forms is, as a rule, redundant; the material is so pliant under the hands of the modeller, lends itself so readily to ornament, admits so easily of additional details, that, unless in the hands of a true artist, over-ornamentation is sure to result. The "Amazon Vase," whatever may be its merits as a *tour de force* of manufacture, is a good example of this, and shows what should be avoided rather than as a work of art. Other vases, fountains, etc., are, as to taste, on a par with the positions they are likely to occupy in the villas and mansions of our suburban districts. This beautiful material, however, is coming into favour Architectural pottery, terra-cotta, etc.

with our architects, and there are many signs, in the buildings in progress in various parts of the metropolis, that its proper treatment as a material for ornamentation is becoming appreciated by them.

Pottery domestic utensils.

DOMESTIC POTTERY.—In examining domestic utensils fashioned by the hands of the potter, it is remarkable how persistent, in the different countries, are the forms of such utensils; how, indeed, the household vessels of remote ages continue, in the same localities, to be produced even to our own times; more especially in those countries where civilisation is imperfect, or a rude state of society is slowly yielding to a more advanced one. Even provincial peculiarities as to material, shape, colour, and other decoration, cling to localities despite the novelties that extended trade and commerce tend to introduce. Exclamations as to want of novelty are at times heard from the visitors to this section of the Exhibition, even in the face of the most extreme efforts after novelty; but, in objects of domestic utility, in what is novelty to be sought? There are but few simple forms of capacity; these we may combine, alter as to proportion, refine, or the reverse, or vary by stems or handles. Even here we are confined within still narrower limits, when utility has to be largely considered, and capacity for containing or discharging the contents, solid or liquid, for cleansing, portability, etc., form part of the problem; and when constant use has made the consumers well-informed in these respects, then we become aware that variety in this class of objects is mostly to be sought in the surface decoration of certain established forms, and novelty less to be expected than in those works it has been thought well to describe as "ornaments." There the designer, the modeller, and the painter may lavish their art, unrestrained by any utility or any rules but those which govern the best use of the means or material on which they expend their skill. And, in this view, great toleration should be given to over-extravagant fancies and efforts, since, on objects classed as *ornaments*, unrestrained art, lavish decoration, and new materials are first tried, to be applied in due time to domestic utensils, under the restrictive rules for their production, which are such curbs on the invention of the designer.

When the attempt to produce the porcelain of the East was, at the beginning of the last century, crowned with success, and the Duke of Saxony founded the manufactory at Dresden, the hard, semi-translucent body, the forms and colours of Chinese porcelain, were the objects of the manufacturer's ambition. France, entering into the contest later in the century, and disappointed in achieving the hard paste of the East, invented the *pâte tendre*, which so readily lends itself to surface decoration. The skill of the French chemists was engaged on the invention

of new fluxes and new pigments. The best artists of France designed new forms, and the painters vied in decorating their surfaces; indeed, the style produced may be called a painter's style. Thus, the porcelain of the manufactory at Sèvres obtained a reputation that has never been equalled; and some of the choicest attempts of our own manufacturers are still devoted to the reproduction, either directly, or with varied treatments, of the fine works of the golden age of that celebrated manufactory. Hence perfection of material execution has resulted rather than novelty. Pottery: domestic utensils.

Again, at the latter end of the last century one of our English potters, Wedgwood, wisely and unreservedly seeking the aid of one of our English artists, produced a style as novel in its kind as that of Sèvres. Based more directly on the art of Greece and Etruria, it has yet its own distinctive character; it is marked by the impress of sculpture rather than of painting, and, during three-quarters of a century, has continued a favourite with the world. Instances of such marked class novelty are hardly to be expected to arise even from international exhibitions; but, with novelty in the treatment of individual objects, with novelty of effort, and certainly with restrained taste, the Exhibition abounds, as also with novelty of material, such as that somewhat improperly called "permanent fresco" of Minton, Campbell & Co., and the painting, with coloured slip or clay, by the same firm, etc. These, however, do not enter into the scope of this Report. Perhaps, among the domestic pottery of the Exhibition, the most distinctive novelty, as a whole, is the earthenware dinner-service, and other utensils, exhibited by Messrs. Wedgwood, in which simple, and by no means novel forms, in a cream-coloured body, edged with a narrow yellow margin, are decorated with subjects slightly and sketchily painted by Lessore. There is a freshness about the very simplicity of the ground and its decoration that excites our pleasure—the more, perhaps, from the proximity of the highly-ornamented and skilfully-decorated works which are in its neighbourhood.

When the pottery coming under the previous heads has been reviewed, there still remains a large class of objects which we can only designate as *Ornaments*. What principles of design can be applied to them, or by what rules shall we criticise them? It cannot be said that "Utility should be considered before ornamentation," for real utility they have none. It is true that many of the objects thus grouped may take the form of vases, epergnes, candelabra, fountains, pilgrim bottles, etc., yet they never pretend to serve such purposes, but are merely decorative ornaments. Indeed, judging from the general aspect of such works, it would seem that the more fantastic, rococo, and picturesque the work, the Pottery: ornaments.

Pottery: ornaments.

more, with some persons, it seems an object of admiration. It is possible to judge of an imitative fish in an imitative basket, by its truth of imitation; but, at the best, even with the precedent of Palissy ware, it is low art; and, why such imitation at all, since, after the first wonderment is over, it will but cumber the side-table or the cabinet? The old Palissy and majolica ware were intended, in the absence of silver or gold plate, to furnish the buffets of those days, and give sparkle and colour in the apartment; and there may be a degree of pleasurable use in the same class of ornaments for the same purpose on mantel-pieces and shelves in our own; some may even hold flowers, or the trifles of the boudoir or dressing-table, and some may give richness to our dinner-tables; thus works in this class may, perhaps, be left to their fantastic originality. A vast amount of good art is, however, expended upon these ornamental objects; it is on such the artist is more peculiarly engaged, rather than on pottery for domestic use; and some suggestions may well form a part of this Report, to prevent, if possible, art being improvidently employed, or in a manner likely to defeat itself.

And first, it would appear that china, and even faïence and stone-ware, are so beautiful in their material, or what is called the body of the ware, that it seems wrong wholly to obscure that body—to metalise it by too much gilding, to render it into an imitative *cloisonnée* enamel, to give it the appearance of hardware, of papier mâché, or anything but what it really is. This seems to hold good even in our modern majolica, which, when wholly covered with paint, has less beauty of appearance than when the natural colour of the body pervades some part of the surface of the work. As an example, the large vases exhibited by Prussia suffer from this defect; had some part of the natural surface of the material been left, the contrast would have been agreeable, the colouring have seemed richer, and the vases have looked less like papier-mâché, or Vernis-Martin. Not only is it objectionable wholly to hide the surface of pottery, but the attempt to imitate other materials is rarely satisfactory; thus the beautiful dark enamelled pottery from Worcester suffers, from our comparing it with metal enamel-work of the sixteenth century. The same may be said of various very fine works exhibited by Minton & Co., who have made great efforts—and in most instances successful efforts—in so many departments of the potters' art in this Exhibition. Thus the beautifully-manufactured vase (No. 242 in their list), and another (No. 13) by the same firm, the one imitative of *cloisonnée* enamel, the other ornamented with bands of imitative damascened ornament, although great efforts of manufacturing skill, are examples of mis-applied decora-

tion, and cannot compete with the rich quality of surface of Chinese *cloisonnée*, or the inlays of India, Milan, Liège, or Spain. In the fine vases of the best time of Sèvres, the bleu du Roi, the rose du Barry, and other exquisite surface colours, rarely cover the whole object, but leave the ground of the *pâte* exposed in various parts, on which the painter has exercised his skill in floral, landscape, or figure decoration. This rule of not concealing the true material, holds good also as to the gilding of china, both of the principal form and of the accessory parts, handles, knobs, etc., which should not be treated so as to look like gold mounts, but the gold so added as to be evidently an enrichment of the pottery; too much gold is particularly offensive, giving a heavy, clumsy look; this is shown in the Russian vase, No. 4072, also in some of the pieces from Worcester, where the handles and knobs appear like ormolu mounts; also in the handles, bands, and cover—the raised ornament of a fine vase exhibited by Messrs. Copeland. The handles have the heavy look of ormolu, and appear as accessories attached to, rather than formed out of the materials of, the vase itself, besides interfering with the delicate painting of the flowers on the body of the vase. The pleasure arising from the *material* is shown in our delight in white china, or in the most simple mode of its decoration. Thus, in Nankin porcelain, with its blue ornament; in Satsuma ware, or even our own fine stone-ware, of which some pieces of great beauty as to body or material are exhibited by Doulton & Co. This remark is not intended to impugn the use of coloured body, as in Wedgwood ware, or even that of French celadon, but refers to the error of imitating another material in porcelain or earthenware.

Pottery: ornaments.

Having reported so far on design applied to woollen goods and pottery, the classes more particularly set forth for this year's Exhibition, it only remains to notice some of the miscellaneous works admitted to the Fine Art Galleries from their more intimate relation to art. In many classes of manufactures these works are so few in number and so difficult to group together, that design in relation to them may be passed over until the classes in which they are comprehended form a part of the Exhibition of the year. The larger number, however, of such miscellaneous works come under the head of *Furniture*, and call for consideration in this Report. It was laid down in the Report on the Paris Exhibition of 1855, p. 14, that "the primary elements of style are constructive, and that the design of a work must have regard to construction, and consequently, to proper use of materials prior to the consideration of its ornamental decoration;" and that "as construction necessarily implies a purpose, *utility* must have precedence of decoration."

Miscellaneous art workmanship.

Furniture.

In few of the costly pieces then exhibited had these rules been observed. They were mostly designed as ornamental objects, their use being little regarded. But since that period, and in the present Exhibition, a change is evident; partly from the enunciation of these laws, and still more from a reviving taste among our architects and designers for the more simple mediæval styles. The works now under review may be fairly divided into two classes. First, that wherein utility is the primary motive, and constructive simplicity the rule. Secondly, that wherein the production of a grandiose ornamental object is the first consideration, the use to which it is to be applied being of very secondary importance.

Of furniture subordinate to its use, there are several objects in the Exhibition that deserve especial attention. Look at the simple form of the piece designed by Mr. Talbert, and exhibited by Gillow & Co.; at the first glance we ascertain its use. The broad shelf, at a suitable height, for dishes and other table requisites necessary to be ready to hand; the smaller nooks for condiments, the upper shelf for silver plate, the cupboards and drawers beneath, and the recessed shelf for less sightly objects, show it to be a sideboard, and not an ornament. Yet how agreeable are the decorative details—panels of boxwood, where in low relief are incised groups of fish, flesh, and fowl, alternating with geometrical forms; the boxwood, and the oak of which the structural part consists, have just enough contrast to be agreeable without the slightest pretentiousness; it is a work of much merit.

Another work on the same principle of constructive utility and subdued propriety of decoration, is the bookcase of ebony and amboyna wood, also exhibited by Messrs. Gillow. Here, again, the subordination of ornament to use, and the treatment of the material is well attended to, and the result is great propriety and good taste. Messrs. Collinson & Lock's exhibits are in this class. The bookcase in satinwood, with delicate inlays and ivory fittings, and the cabinet with painted decorations, though these latter contrast rather too strongly with the dark framework. Mr. R. Charles, in the works designed for Messrs. Walker & Sons, has sought utility and its simple decoration, and the wardrobe and dressing-tables exhibited by them are in good taste—as is also the wardrobe and dressing-table by Messrs. Hunter, with agreeable interchange of materials, inlays, and fittings, though it is a little over decorated.

Of works in the Second Class, that wherein the production of a piece of ornamental furniture is the object, the most prominent is the walnut-wood sideboard designed by Mr. M. Rogers. Its description, as "with richly-sculptured trophy, representing hunting

and fishing," serves at once to classify it. It is architectural in its treatment, large in style, and in good proportion, with solid columnar supports, boldly projecting mouldings and cornice, curved pediment, and other motives so common to Renaissance furniture. The carving is skilful, both in design and execution. This sideboard, in former exhibitions, would have been thought modest and subdued in its decorative features, but it now stands as representative of the class of *ornamental* furniture, and enables us to compare the growth of a taste for simplicity of form and constructive utility in such works. In the same group is the ebony cabinet designed by R. Jefferson (No. 3058). It is beautifully executed, but the design has all the faults of French Renaissance—false construction, heavy mouldings, unnecessary niches, and useless columns. The ebony cabinet designed by A. Lorimer, has a transitional look, with some of the stock Renaissance motives of entablatures stilted on the top of columns, broken pediments, etc.; it nevertheless is, in parts, simple in its construction, while the projections are not too pronounced. The ivory inlay is well designed, and in good ornamental taste, its fault being that it is redundant, and, from its being distributed over all the constructive parts, instead of confined to panels and large surfaces, it looks too flimsy and web-like. Furniture.

While on this subject, it may be as well to remark on some faults in the application of marquetrie and inlays, both of wood, of ivory, and of metal. An examination of inlaid furniture shows the errors to which the designer is liable. These may be described as—First, when the contrast of the materials is too violent—Second, when there is insufficient contrast between the inlay and the material inlaid—Third, when inlays are inserted in unsuitable materials—and, Fourth, when the ornamental inlay is in excess. The design of the ornament when ebony is inlaid with ivory, or in any strongly contrasting materials, should be very perfect in line, and pure in its general forms, the very strong contrast between the two materials calling attention to any false curve or unpleasant grouping; if it is in too great quantity, or spread too much over the whole surface of the work, a want of breadth and repose is the result. On the other hand, if the wood, or other material in which the inlay is inserted, is too much alike, in colour or tone, to the inlay itself, the labour bestowed by the inlayer may be thrown away, or, at least, be less effective than it ought to be. There is a little sense of this fault (certainly a fault on the right side) in the inlaid furniture designed by Mr. R. Charles, of which mention has been made. Thirdly, when inlays are inserted in an unsuitable ground, the effect is equally lost, as in the piano exhibited by J. Brinsmead & Son, where the Marquetrie.

Marquetrie.

configuration of the grain of the wood mars the effect of the inlay, and this, joined to the stringent saw-cut ornament, disturbs the eye by the multiplicity of forms, and destroys all sense of pleasurable repose. The skilfully-designed inlay or marquetrie of the table by Mr. C. Slocombe, belonging to the Duke of Northumberland, may be referred to as an example of excess. Not only is the whole surface of the table too much covered by the decorative border and centre, but the want of repose thus arising is increased by the redundant curves and busy fulness of subject in the marquetrie; while the flat treatment, which ought to be the rule in inlaid work, is violated by bands and foliage passing under and over one another, and by the sense of ornamental relief given by contrasting dark and light woods. Thus, while the ornament is full of fancy, and of high skill and merit, the principles that should govern inlays are not so well attended to as they are in the excellent inlaid table of Mr. Jacob, or in that of Mr. A. Lorimer. It has already been said that redundance often arises from ready means of execution. This may account for a little excess of ornament on some simple pieces of furniture designed by Mr. A. F. Brophy, and on which a new process of staining wood has been used to supply the decoration. Subdued, and used with more restraint, the process seems to supply an agreeable mode of cheaply ornamenting works of this character.

Having thus reviewed some of the most important objects embodying design, it has become evident that, partly from the effect of former Exhibitions—by the spread of sound criticism, and deduction of principles from the examination of fine works—much progress towards excellence has resulted; and not only has invention, controlled by sounder taste in its application, been stimulated, but the extravagant *tours de force*, the efforts after startling novelty, and to produce works of great size or curious difficulty, rather than of utility and beauty, which crowded our first International Exhibition, are far less resorted to by our designers or manufacturers to secure the applause of the public.

REPORT ON REPRODUCTIONS

In the International Exhibition of 1871.

By LIEUT. H. H. COLE, R.E.

Art collection how formed.

In almost every European capital collections of works of art of different periods have been formed, with the object of cultivating the national artistic instincts. Sometimes the impetus for commencing such collections has been given by the bequest of curiosities brought together through the judgment of the donor. Sometimes pieces of metal-work, the productions of early times, or bits of pottery found in the town or its vicinity, have been the immediate stimulating causes from which museums have sprung. Hence it is that all art collections have, more or less, each an individuality, which they derive from the character of their nuclei.

Now-a-days, the keen competition for obtaining representative specimens of art-work acts as a distributive rather than a combining agent. A fine collection, consisting of several specimens of some well-known art, comes into the auctioneer's hands, and greedy purchasers from all quarters at once pounce upon the objects of their choice; and thus, what was once a complete and tangible history of an art becomes scattered to the four winds. The integrants dispersed in this way have their own histories full of interest, of changes, and even romance. At times the property of Kings and the Church, they pass into the dealer's hands, whence they again start on new peregrinations, which terminate frequently in destruction, or they are lost to the world until fortune or accident brings them to a new era of existence.

Their frequent dispersion.

The famous earthenware so well known by the name of its originator, Henri II., is a forcible example of this distribution of works. During the period of their existence, the specimens of this ware have become more and more scattered. Although, at

the present time, nearly all the extant pieces are known, it is most improbable that they will ever become re-united in one collection.

Value of register of art treasures.

To induce the possessors of such treasures to co-operate in some system of registering their art-possessions, which might be published from time to time, would of itself be a valuable assistance to art education; and there can be little doubt that such a scheme would meet with approval. Catalogues would form the natural bases of such registers. But very few private collections, unfortunately, are properly catalogued; and many possibly never may be unless the different owners personally interest themselves in and undertake the work of compilation.

Art registers and reproductions provide students with the power of acquiring a knowledge of the arts of foreign countries. Formerly, to learn anything of the arts of a country it was necessary to travel. Those whose limited means prevented them from travelling, could only add to their artistic knowledge by perusing travellers' accounts of foreign arts, or by occasional glimpses at treasures which chance happened to throw in the way of their observation. Sometimes an artist in his foreign journeyings would make jottings and sketches of architectural and artistic works, but when he returned to his native country, who but the few privileged friends of his society ever saw them, and derived the benefits of their suggestive quality? Now-a-days, things are in many respects changed; travelling is easier, and to those who remain at home, the museums are accessible. In them, not only are examples of art of all nations collected, but of late years the habit of substituting *fac-similes* or reproductions when the originals cannot be obtained, has, fortunately, come to be recognised as a legitimate proceeding. By this system of reproductions, a critical comparison can be made of different styles of art belonging to the same or different countries, and a beneficial influence to the keeping up the character of our own national art is thus imparted. Considerable interest has for some time been manifested abroad in the operations of art reproduction. England, through the South Kensington Museum has, perhaps, taken the lead in the work. In fact, at the present Exhibition, with but few exceptions, the main proportion of the objects exhibited in Room No. XVII. has been produced at the instigation of the authorities of that Museum.

Growth of the practice of reproducing art objects.

A cursory review of the gradual growth of this system, which promises to have so considerable an effect upon the art-culture of the world, and particularly upon that of our own country, will I hope, therefore, not be regarded superfluous or out of place in this Report.

Growth of the practice of reproducing art objects.

In 1852, just after the first great Exhibition, it was felt that no aid in teaching the principles of decorative art was more valuable than a good collection of casts of plastic ornament; accordingly the Government department of Practical Art determined to make a systematic collection of casts of objects having especial reference to art industry, and to arrange them historically.

During the following year seventy casts were taken from the furniture lent to the Science and Art Department; and, for the purpose of taking moulds from fine original works entrusted to the department, measures were organized at Gore House—the present site of the Royal Albert Hall—and arrangements were made with Messrs. Elkington to enable the public to obtain repetitions through the ordinary channels of trade. These arrangements were intended to apply, not merely to casts, but to electro-deposits of various metals. In the year 1855, Government directed that an inspection and report of the Department "Du Moulage" of the Museum of the Louvre, and the Ecole des Beaux Arts, in Paris, should be made. At the same time, by desire of the Emperor of the French, M. Desachy, the "mouleur" to the Louvre visited London, with the view of establishing an agency for the sale of casts and electrotypes. Casts of metal works from Paris, carvings in ivory, and photographs, formed part of a circulating museum which was sent by the Science and Art Department to local schools of art. In 1856 the scheme of reproductions made no great progress, as the space at Marlborough House—where the department was located—by its very limited extent, restricted any systematic arrangement. It was not until 1858, when the collections had been removed to the South Kensington Museum, that any additions were made. The following year the important step was taken of obtaining official photographs of the Raffaelle cartoons, and arrangements were reconstituted for supplying reproductions to the public. In 1861 Turner's Liber Studiorum was photographed, and the demand for positives became so large that it was determined by the department to continue only to produce negatives, leaving the question of printing to agents.

Convention of European Princes in furtherance of art reproductions.

Some important reproductions were procured in 1864—65, among which were some large casts and electrotypes. The expenses in the primary operations of moulding for such works from the originals were found to be very considerable. To pursue the scheme with economy, facility, and mutual advantages to all countries, it appeared to be imperative that some basis of operation, more enlarged than heretofore, should be instituted. His Royal Highness the Prince of Wales and Her Imperial Highness the Crown Princess of Prussia, during the Paris Exhibition of 1867, took active measures to bring the subject of reproductions before the Princes of Europe

assembled at that time in Paris. Unanimity of opinion upon the subject existed, and the result of it at length took the form of a convention of which the following is the full text, with the names of the various signatories:—

"CONVENTION

Convention. FOR PROMOTING UNIVERSALLY REPRODUCTIONS OF WORKS OF ART FOR THE BENEFIT OF MUSEUMS OF ALL COUNTRIES.

"Throughout the world every country possesses fine Historical Monuments of Art of its own, which can easily be reproduced by Casts, Electrotypes, Photographs, and other processes, without the slightest damage to the originals.

"*(a)*. The knowledge of such monuments is necessary to the progress of Art, and the reproductions of them would be of a high value to all Museums for public instruction.

"*(b)*. The commencement of a system of reproducing Works of Art has been made by the South Kensington Museum, and illustrations of it are now exhibited in the British Section of the Paris Exhibition, where may be seen specimens of French, Italian, Spanish, Portuguese, German, Swiss, Russian, Hindoo, Celtic, and English Art.

"*(c)*. The following outline of operations is suggested:—

"I. Each country to form its own Commission according to its own views for obtaining such reproductions as it may desire for its own Museums.

"II. The Commissions of each Country to correspond with one another and send information of what reproductions each causes to be made, so that every Country, if disposed, may take advantage of the labours of other Countries at a moderate cost.

"III. Each Country to arrange for making exchanges of objects which it desires.

"IV. In order to promote the formation of the proposed Commissions in each Country, and facilitate the making of reproductions, the undersigned Members of the reigning families throughout Europe, meeting at the Paris Exhibition of 1867, have signified their approval of the plan, and their desire to promote the realization of it.

"The following Princes have already signed this Convention:—

"Great Britain and Ireland, Albert Edward, Prince of Wales, and Alfred, Duke of Edinburgh; Prussia, Frederick-William, Crown Prince of Prussia; Hesse, Louis, Prince of Hesse; Saxony, Albert, Prince Royal of Saxony; France, Prince Napoleon (Jerome); Belgium, Philippe, Comte de Flandre; Russia, The Cesarevitch, and Nicolas, Duc de Leuchtenberg; Sweden and Norway, Oscar, Prince of Sweden and Norway; Italy, Humbert, Prince Royal of Italy, and Amadeus, Duke of Aosta; Austria, Charles-Louis, Archduke of Austria, and Rainer, Archduke of Austria; Denmark, Prince of Denmark.

"Paris, 1867."

Crystal Palace reproductions. The Crystal Palace has made extensive use of reproductions in its varied courts representative of periods and styles of art—notably in the Egyptian and Alhambra Courts. In the Italian and English Courts, too, are several copies in plaster of famous sculptures, monuments, etc. The endless attractions so well known as the leading features of the Palace at Sydenham, however, quite throw into the shade the instructive value of the Fine Art fac-similes which

abound throughout the building, and they are rarely studied or appreciated properly.

The Arundel Society has also done much towards promoting art knowledge, by publishing, from time to time, copies of works of ancient masters. These copies are chiefly chromo-lithographic and photographic. The chromo-lithographs are most successful, especially those lately produced. And, although the work is not included in the Exhibition, I would call particular attention to the copy of the triptych from the Hospital of St. John at Bruges, a very minute painting by Memlinc. This may be seen at the office of the Arundel Society. It is a faithful copy, and a remarkable work in chromo-lithography. The Arundel Society.

Having now briefly shown how the present system of reproduction originated and has developed, I propose to allude to the diversity of methods of reproduction. In the first instance I mention the broad divisions into which reproducing as a process naturally resolves itself:— Classification of the various methods of reproduction.

I. The purely mechanical reproduction.
II. The reproduction in which mechanical, principally, and some artistic, requirements are brought into operation.
III. The reproduction depending solely on the artistic power of the reproducer.

The purely mechanical reproductions embrace:—

a. The different methods of moulding in clay, composite, wax, plasters, gutta percha, gelatine, and paper, and of casting from these in plaster of Paris.

b. The methods of moulding in gutta percha, wax, plaster and composite materials to enable a deposit of copper, silver, or gold, to be attached by the agency of electricity.

It is to "form" that these methods chiefly apply, although the art of the electro-typist extends occasionally to the imitation of discoloured metals as instanced by objects from Pompeii (No. 4035), and to the introduction of enamels and imitations of precious stones.

In the case of No. 4012, which is a metal electrotype of a violin in boxwood, given by Queen Elizabeth to the Earl of Leicester, the imitation of the colour of the wood may be said nearly to approach that second class of reproductions in which artistic as well as mechanical skill is necessary.

Of casting methods, that by compression of the clay to the object to be cast is simplest. Mould upon mould may be built upon the face of the object, until the whole surface is completely covered. Piece moulding in clay, plaster, etc.

Piece moulding in clay, plaster, etc.

Then, to ensure a well-fitting of the moulds so made, groups composed of three or four of them are screwed together by backings of wood, and the casts made in plaster of Paris.

The results which are produced by this process have to undergo scrapings, touching up, &c., in order to get rid of the many indications of the junctions of the moulds, which repeat themselves "in reverse" on the surface of the last, as well as to correct the "faults" which occur frequently by the use of clay. To a great extent, more especially in small carvings, this after touching-up is inimical to the perfection of the fac-simile produced. And this applies in a lesser degree to the process of piece moulding with plaster of Paris, by which reproductions of a very perfect character are made if great care is taken in the preliminary operations. Thorough completeness of perfection is prevented alone by the indications of the seams produced by the junctures of the plaster moulds. In some cases it is considered desirable to leave the seams on the cast untouched, in order to avoid any interference with the accuracy of the piece-mould—as in the case of the cast of the Virgin and Child (No. 4005), in which the carving is in very low relief, and any touching-up would injure its character, and introduce a quality of work inferior to that of the original sculptor.

Gelatine moulds

Piece-moulding, whether in clay, plaster, or any other material, involves considerable skill and time; hence its unsuitability in reproducing large objects; and this renders it necessary to have recourse to a process not only more easy and quick, but to a great extent, obviating the necessity of manipulating the casts when they issue from the mould. A process of moulding with gelatine was evolved, and it meets the requirements above stated to a very considerable extent. It is applicable in the reproduction of big objects, by reason of the large area which a single mould can cover. As the gelatine is elastic, a great extent of what is technically called "under-cut" in the carving, may be embraced in one mould, thus rendering unnecessary the making of a number of joints. In withdrawing the elastic mould from the object under treatment, the gelatine stretches itself in order to become released from the under-cut, but it regains its shape almost immediately, without destroying any of the extreme accuracy with which the gelatine is able to repeat every mark and grain on the surface reproduced. The two altar pieces (Nos. 3995 and 3996) by Pierotti, illustrate the degree of relief and under-cut which is capable of reproduction by an elastic gelatine mould; the reredos of an altar (No. 3997), by Franchi, is also a good specimen of sharp and perfect reproduction by this method. In every class of piece-moulding the method of covering the carved surface with a number of

inelastic moulds capable of being individually removed with ease, is theoretically the same; but the perfection of the plaster piece-moulding depends on the skill of the moulder in so disposing the moulds as to have the fewest possible joints when the piece-moulds have been made to completely cover the carving. These piece-moulds are, in turn, covered, or rather backed, with larger moulds, which serve to hold them in position when the cast is being made. Gelatine moulds

In the gelatine process, the backing or wall to hold the mould is the primary work, and then hot liquid gelatine is poured between the backing and the carving. The process is briefly as follows:— The carved surface is thoroughly cleaned and covered with rolls of modelling-clay, the outer surface of the clay is smoothed, and a plaster coating or wall built against it. This wall is then removed, and the clay taken away; when replaced, an interval of the exact thickness of the clay will exist, and into this interval is poured gelatine. After twelve hours the gelatine will have attained the consistency of india-rubber, and may be peeled off the carved surface. In cases of deep undercutting, considerable force is required to effect this. The gelatine mould is then laid on the wall which supported it in the liquid state, and a plaster cast or *fac-simile* is made. In every distinct operation the greatest care and experience are required, in order that the natural good qualities of the gelatine may be allowed perfect freedom in producing an accurate copy.

Paper moulds are never satisfactory. The material and its application are opposed to the production of clean and sharp moulds. For objects in very low relief, paper moulding answers to some extent, and the process is easy to learn, while the material and tools are cheap to purchase. When the surface of the object has been prepared, strips of rather thin paper are placed over it; upon them are other strips pasted, and by means of a blunt-pointed wooden tool the paper is worked into the carvings of the surface being moulded. The laying on of freshly-pasted slips continues until a sufficiently strong mould is made. It is then allowed to dry and harden, and when withdrawn, plaster casts can be made from it; but, except in cases of emergency or of necessity from absence of better materials, I cannot advocate the use of the paper moulding process as one likely to produce good results. Paper moulding.

For moulding metal-work, gutta-percha is a convenient material. It is applied when in a soft state, and the several pieces may be squeezed one into another over a surface, so that the joins of the moulds become but few. Gutta-percha moulds used for electrotyping.

For electrotyping, moulds are most frequently made in gutta-

Gutta-percha moulds used for electrotyping.

percha, and this material conduces to excellent results. It is, however, applicable only to the deposit of copper; for silver or gold the mould must be in copper, and is produced from a gutta-percha or plaster "relievo."

In making an electrotype from a plaster mould, the plaster is saturated with bees' wax, and covered with a metallic powder, on to which the copper will deposit itself. For art reproductions it is most usual to make the foundation copper, which is afterwards silvered or gilt according to the original.

Examples of mechanical reproductions in the Exhibition.

Before quitting the processes (which I put under the "purely mechanical" category) for making casts and electrotypes, I would draw attention to the various specific exhibits, which I have classed in this way.

The bas-relief of the Diana of Fontainebleau, by Benvenuto Cellini (No. 3983), is a plaster cast, made by a piece mould, and coloured to imitate the metal of the original. The statue of St. George, on horseback, slaying the dragon (No. 4000), is also made by means of a piece mould in plaster; also the two panels in relief (No. 4002), from the Cathedral at Prato, by Stiattesi; and Messrs. Franchi & Son's cast of the Virgin and Child (No. 4005).

The gelatine process was employed in producing the larger and more important casts exhibited. The Norwegian Doorways (Nos. 3984 and 3990), by Mr. D. Brucciani, are casts obtained by this process, and subsequently coloured to imitate wood of which the doors are carved. The cast of the Eastern Gateway of the Sanchi Tope (No. 3981), made under my direction in Central India, in 1869, is from a gelatine mould, and cast in coloured plaster. Messrs. Franchi have several pieces by this gelatine process, among which is the reredos of an altar formerly in the Church of San Francisco, but now in the Campo Santo, at Pisa.

Some metal castings, by Signor Castellani, are exhibited of eight original bronze objects at Pompeii (No. 4041), and were made by means of sand moulds, into which molten metal was poured.

'etal oductions.

Among the electrotypes, Mr. Franchi has a good fac-simile of St. Patrick's Bell (No. 4008); also copies of some pieces of plate (No. 4034), belonging to the late Countess De la Warr, of Knole Park. Electrotypes of large objects are composed of a great number of detached pieces, which are fitted together by hand, in order to form the whole copy of the original. The Hall Lantern from the Palace of the Counts Gradenigo, at Venice (No. 4040), is such a reproduction, and has been made for the King of the Belgians. The original is in wood, and it was at His Majesty's suggestion and desire that M. Franchi made the reproduction in metal. This work has involved

much skill and delicacy of manipulation, and, of its class, stands alone in the history of reproductions. The Milanese Shield (No. 4030), is a careful electrotype, by Lionnet Frères, who have several other works in the room of the same merit, and characterised by similar good workmanship. Metal reproductions.

Since writing the above, a foreign gentleman (a Russian) has given me the opportunity of looking at an iron electrotype. This is, I believe, a new branch of electrotyping, and, judging from the specimen produced, promises to be the means of providing cheap and highly artistic metal-reproductions.

The second class of reproductions, in which the mechanical and artistic elements are mingled, embraces not a very great variety, and is confined in this Exhibition almost entirely to the copies of mosaics. In 1868, the Committee of Council on Education deputed Mr. H. Cole, C.B., and Colonel Scott to visit Italy and Sicily, with the view of reporting upon a feasible mode of obtaining for the United Kingdom an historical series of specimens of the art of mosaics. In an elaborate report upon this subject, these gentlemen recommended the reproduction of a very comprehensive chronological sequence of mosaics, which should be used for the decoration of the New South Court now nearly compleed at the South Kensington Museum. Certain of these works have already been carried out, and the results, "The Saviour as the Good Shepherd" (No. 4062), executed by Messrs. Salviati, and (No. 4061), "Christ's Entry into Jerusalem," from the Cathedral of Mon Reale, in Sicily, executed by Messrs. Riolo, are exhibited. Without strict comparison of the copy with the original, an operation always attended with difficulty and risk, and generally impossible, the mere copying of the mosaic, left to the artistic power of the copyist, appeared to be scarcely exact enough a method for obtaining what was required. The question seemed, therefore, to arise, how the fidelity of the reproduction could be tested. A test was absolutely necessary for the satisfaction of all concerned. After a few experiments, a system was devised of which the method is simple, and the materials easily to be obtained. Sheets of damped blotting-paper of a certain thickness are applied to the mosaic to be copied; by dabbing these with a long-haired brush, the precise position of each tessera is obtained upon the blotting-paper; when dry, the artist paints upon the indications of the tesseræ the tints required, which he copies from the original. This portion of the work, which can be rapidly done, is, for the sake of precision, carried out in the presence of the mosaic. Reproductions of this nature have been made at the instance of the South Kensington Museum, by one of its agents. When the coloured paper copy has Copies of mosaics.

Copies of mosaics.

been approved by the authorities at the South Kensington Museum, it is passed to the mosaicist, who has but to place and fix his own tessaræ in accordance with the paper mould, and to exercise his judgment in the selection of the proper colours.

It is, perhaps, unnecessary to mention that the primary reproduction cannot be considered as one of that section of works which have been described as purely mechanical. The paper "cast," if it may so be termed, and its subsequent colouring, come under the second class of reproductions—viz., fac-similes requiring mechanical and artistic skill; and I think that these mosaic copies take, in that class, a high rank. Excepting the actual mosaic copies above named, there are no other similar reproductions in the present Exhibition.

Coloured photographic reproductions.

Coloured photographs may be fairly classed under the second division of reproductions. Great accuracy is obtained, so far as respects drawing, etc., and the colouring alone is dependent upon the ability of the artist to whom the execution of it may be entrusted. If the artist has the power of precise perception of colour, such reproductions are highly valuable. To instance this, I need but refer to the very clever copy of a retable of the altar in Norwich Cathedral (No. 4066), by Messrs. Randall & Pilsbury. Objections are, at times, taken to photographs as crude and inartistic productions. In the case of the retable copy, it would be difficult to trace any of the objectionable features of a photograph. Those who know the original will be much struck with the fidelity of the copy; and this fidelity, in the main, may be said to be owing to the precision of the drawing insured by photography in the uncoloured copy upon which the artist had to work.

Copies requiring artistic skill.

Of the third section of reproductions, those which depend solely upon the artistic ability of the copyist, to which the latter drawings of mosaics more properly belong, the portrait of Richard II., by Mr. J. A. Randall, may be cited as a good example. Herein one perceives the care which this precise copy has demanded. The finesse with which the pink tint is imparted to the gold background is the result of patient investigation on the part of the artist. Details such as these, in this kind of reproduction, are of eminent importance, and go far to press upon the acceptance of those who may not be acquainted with the original work, the precision of the remaining and more straightforward portions which involve but careful copying. An artist who pays so keen an attention to minutiæ of his operations, such as those to which allusion has been made, may reasonably be supposed to have the power of copying the drawing and colouring

the original work carefully. Of course, it is only when such reproductions bear the impress of the copyist's appreciation of the character of the whole, and of the details of the original work, that they are really valuable. Memoranda, or rough sketches of fine art works are pleasant, and serve as reminders, but their value, as works of reference, cannot compare with precise and elaborately finished copies. **Copies requiring artistic skill.**

To the art student the latter are of infinitely greater value than the former, which invariably contain the mannerisms of the hasty sketcher. These mannerisms are not unfrequently or unreasonably mistaken for features belonging to the original work.

Forming a portion of the historical series of mosaics, but to be classed in the third division of reproductions, are some most excellent and extremely carefully-coloured drawings of mosaics in the Cathedral of Monreale, at Palermo, which, for purposes of reference and study, are but little inferior to reproductions on a full scale. These drawings, forty-four in number, were produced between the years 1859 and 1860, by Abbate Gravina. Other drawings of mosaics are exhibited, notably one of the mosaics of St. Maria Maggiore, which is executed in a minute and accurate manner by Zeri.

In No. 4047 is exhibited a most interesting series of full-sized copies of early Christian paintings, from the catacombs of Rome, dating from the 2nd to the 7th centuries. There are in all four, of a moderate size and painted on canvas. A still more interesting and instructive collection of copies of early Christian paintings are exhibited under No. 4048; Nos. 7, 8, and 9 cover large canvasses. They are also full-sized copies from originals which have been recently discovered at San Clemente, at Rome, by the Prior, Padre Mollooly, whose indomitable energy in carrying on the excavations has procured for him some of the most interesting, and certainly earliest, specimens of Christian mural decorations. Fortunately, the work of making the copies was personally superintended by Padre Mollooly; the accuracy of them cannot, therefore, be questioned. The subject of No. 3 is remarkable for being the earliest known picture of the Crucifixion. One can scarcely overestimate the value of preserving the recollection of such paintings, which are daily becoming more time-worn and injured by damp.

No. 4071*b* is a copy of the picture, by Titian, of "Peter Martyr," which was burnt at Venice some years ago; it is, therefore, now of increased value as a reproduction.

In concluding this Report, I wish to draw a distinction between reproductions and counterfeits, which are calculated to do more harm than good. The dilettanti in art matters have, at times, greatly suffered from the latter; but hereafter it seems unlikely that victims **Counterfeits as distinguished from reproductions.**

Counterfeits as distinguished from reproductions.

will be numerous. Counterfeits, to pass as original works, have been, and are still, surreptitious productions, from which unscrupulous bargain drivers have profited. But the constantly growing fashion of forming collections of fine-art works, in conjunction with reproductions of all kinds, increase a familiarity with styles of art, as well as with fine standard art works themselves; and so, collectors of the present day becoming naturally imbued with a scepticism of objects purporting to be something which they are not, it will be difficult for the trade of quack dealers in curiosities to meet with success or prosperity. An original work of any merit rarely gets into the market without a crop of connoisseurs as to its origin immediately arising and ventilating opinions upon its virtues. It follows, therefore, that any stimulus to the creation of reproductions, which have a special and honest purpose, is regarded with apprehension by the manufacturers of "true originals" and "unique objects." Plaster-casts can rarely be made to serve as counterfeits; and electrotypes can always be detected; it is, in fact, when the reproduction depends on artistic and manipulative skill in copying, that there is danger of its being turned to account as a counterfeit.

A *soi-disant* reproduction is frequently sought for rather than despised, because it is accepted as a very perfect substitute for a genuine work which is well-known, and impossible or difficult of acquisition.

REPORT ON EARTHENWARE

In the International Exhibition of 1871.

By C. DRURY FORTNUM, Esq., F.S.A.

Historical introduction.

PREVIOUS to the more detailed examination of a collection of pottery, so important and interesting as that here presented to our observation by the manufacturers of Europe and of countries far away, it may be well to bear in mind some recollection of the growth and development of the ceramic, or potter's art. With this intent we propose, firstly, to consider the leading features of its history from the evidence of its own remains—an earlier, and more faithful record, if rightly read, than that afforded by the pen of the historian. Next, directing our attention to the native wares produced in countries of an earlier civilisation, we shall find still surviving, though frequently in a debased condition, the methods of production, and the fabricated pottery, which represents that of a much more ancient and perfect character, both in respect to technical qualities and decoration. Afterwards, we will compare the excellences and the faults of the developed modern productions.

Classification into glazed and unglazed ware.

Pottery may be classed under two great sections or divisions, broadly distinguished as being with or without a glazed surface. The first and most primitive, consisting of a common clay or river slime, more or less mixed with sand and the dung of herbivorous animals, or vegetable fibre, is kneaded and fashioned by the hand into vessels of simple form. These, dried and baked in the sun, are naturally but poor appliances, fitted only to contain dry substances. Burnt in the fire, they become hardened, but not the less permeable by liquids in consequence of their porosity. Such are the bottles called *goolahs* in the East, water contained in which is kept cool by the constant evaporation of what exudes from the surface;

Classification into glazed and unglazed ware.

of these, many, varying in form and dimensions, are to be seen among the potteries of India, Egypt, Spain, Morocco, etc. But such a material will not serve for wine or oil, or other greasy liquids or substances, and it became necessary to adopt one of two methods to render the ware non-absorbent and impermeable. This was to be effected either by the admixture of other material with the clay, and subjection to a stronger heat (by which to render the paste or body of the piece itself impervious by partial vitrification); or by covering the porous baked clay with a coating of some substance which liquids would not penetrate, such as wax or oil, mixed with ochre or other coloured earth, afterwards polishing the surface with a bone or metal tool. Another advance would be by washing the vessel with an alkaline or plumbeous solution, which, by the action of heat, would partially vitrify the surface of the clay. Of some such nature was the extremely thin and scarcely apparent glaze which we find on the classic wares of Greece and Etruria.

Glazed or vitreous covering of surfaces.

But the next and final step in this direction was the covering of the paste with a coating of some substance, which, by the action of fire, would fuse into an adherent and vitreous surface, or glaze, capable of resisting the action of hot liquids. We find, accordingly, that the earliest and rudest potteries of prehistoric and recorded times are but lightly baked, and devoid of glaze. In Egypt, however, at a period so remote as to be anterior to exact record, together with a common unglazed pottery, we find among her monuments small figures, beads, and vessels, formed of a more or less vitrified and finely-glazed ware of great excellence, and upon which pigments producing purple, blue, green, and other colours are successfully employed. Here would seem to be the earliest source and parentage of the glazing applied to the pottery of the East. Assyria and Babylon knew its use on bricks and vessels, and thence, perhaps, it spread into Persia and Arabia. Tradition ascribes the discovery of glass to the Phœnicians; but the little we know of their pottery indicates an Egyptian inspiration. In the far East—in China and India—the use of glaze upon pottery was known at a very early period, and its production widely spread; but to the Greeks, the early inhabitants and colonists of Italy, and to the more northern nations, it does not appear that this method was known; neither had they the means of imparting to it those brilliant tones of colour which are so conspicuous on the oriental wares. We have already alluded to the thin varnish which appears upon the Grecian, Etruscan, and some Roman wares, but this is not to be confounded with the glassy covering to which we now refer.

European and Moorish glazed pottery.

Following this division of the subject, and descending from those higher and colder regions of mythical history, we find that in later Roman times a glaze composed of silica and lead, derived perhaps from an Eastern source, was used in Southern Europe, the remains of which are found, for the most part, on the shores of the Mediterranean, as at Tarsis, the neighbourhood of Naples, etc. But its use was soon lost to Europe during the Dark Ages, though still existent in its native East; thence it was brought into Spain by the Saracen invaders of the 8th century, and by their Moorish successors in the 13th. The arts and sciences had then awakened, and throughout the North commerce was active in bringing the produce of other countries to the notice of her people. Italy had known the use of a coarse lead glaze upon her pottery when she imported the Moorish wares of Spain, and the richly coloured productions of Damascus and of Persia. As art advanced it was found that a mere translucent glaze required amendment, for through it the coarse clay body was visible, and the desire for a white and even surface suggested the coating of this clay with a finer and whiter earth. This was effected by plunging the baked piece into a bath of the requisite material, milled with water to the consistence of cream—a white even surface being the result, capable of receiving designs and colours, to be subsequently glazed over. By scratching the design with a metal point, and scraping off the ground, patterns or figures were left in white relief upon the red or brown clay. This was the process known as "*sgraffito*" or "*sgraffiato.*" But the Moorish potters adopted a better method; they knew that the admixture of a proportion of the oxide of tin with the oxide of lead, and glass, produced at once a white and opaque enamel. This composition was adopted with variations throughout Europe, producing the many varieties of enamelled pottery, from its application to sculpture by Lucca della Robbia, down to the common pottery of Delft.

Italian ware: majolica.

Such was the nature of the Italian ware known as "majolica," a term, however, only strictly applicable to that variety enriched with metallic lustre. Upon the dry but unbaked surface of this white enamel, the subject was painted in colours prepared from metallic oxides, washed over with a thin lead glazing ("*marzacotto*"), and then baked. If the lustre enrichment was to be added, the requisite pigment was then applied with the brush, and the piece exposed, when heated in the oven, to the action of wood smoke, which reduced its metallic ingredients to a thin and lustrous film on those parts upon which it had been painted. This mode of ornamentation was conspicuous on the Moorish pottery of Spain. It was by the

Italian ware: majolica.

use of coloured enamels, the result of patient experiment, applied upon a closer body, admirably modelled after natural objects, that Bernard Palissy produced his highly-valued ware—excellent in execution, although questionable in its too realistic taste. Italy, during her period of revival, showed her artistic power perhaps as much in her ceramic productions as in more important spheres. Germany also applied a glazed surface to her terra-cotta; while France and Holland were the pupils of Italy, then the "mother of arts as once of arms." Such was the general course of the progressive tide. But we must not forget that distinct and specific appliances also showed themselves independently, as for example the encaustic tiles of our own country and of Northern France, the stoneware of the Rhine, etc. Modifications of the earlier method with a more vitreous glaze, prevailed however in the wares of Syria and Persia. By constant thought of many minds, and by persevering experiment, these elements, combined with other additions to the body or the glaze, have produced for our use the admirable earthenware of the present day.

Vitrification of body.

By the other alternative—of vitrifying the paste by the mixture of clays and sands with other ingredients, and exposure to a much higher temperature in the furnace—wares were made of an extremely close and impervious body; hence the stoneware,* hard and imperishable, whose home was Germany. By throwing common salt into the furnace, when all the pieces were at their full firing, it was found that the saline vapour became decomposed, and a thin siliceous glaze covered the ware. Finer materials, combined by chemical knowledge and patient investigation, produced John Dwight's Fulham ware, Wedgwood's "jasper," and the varieties of "biscuit," "parian," and the like, which form connecting links between pottery and porcelain.

Porcelain.

But more was yet required by us, which the astute Chinese had known for ages—viz., a white close body, covered with a clear, colourless, and perfectly adherent glaze, that is—porcelain. The importation of this beautiful manufacture into Europe set all wits to work; its imitation or production was the desire of kings, and artificial combinations were produced of wondrous beauty. The importation of the native Chinese clay, the "kaolin," a product of the decomposition of felspathic rock, and the "petunse,"

* Though out of our province, we cannot refrain from noticing the excellence, in respect to artistic form, of some of the pieces of this ware exhibited by Messrs. Doulton and Watts (4641). Limited in the application of colour, they have wisely adopted forms suitable to the material.

a crystalline form of the same origin, and the subsequent discovery of the same minerals in Europe, laid nature's choicest ceramic material at our feet. But earthenware is our subject, not her younger and more gaily bedecked sister, porcelain, which will be considered in another report. Porcelain.

No. 4011. Although Egypt was probably the first to invent and apply a vitreous coating to her pottery, the art, as formerly practised in that country, seems now to have been entirely lost.* The only glazed ware produced is of a coarse kind made at old Cairo, the glaze, consisting of oxide of lead and pounded siliceous pebbles, is of a yellow tint, unless coloured green by the addition of a small quantity of copper. The most notable ware is that of Siout, or Assiout, on the Nile, and of this characteristic pottery we have a large assortment, as also of the more ordinary porous water bottles, or "*goolahs*." Its great excellences are the forms of the pieces, and their admirable decoration, incised upon the paste, and by the removal of the ground leaving the ornament in a relief, flush, or even with the general surface. Specially worthy of remark are these patterns, consisting of a conventionalised leafage of great variety and excellence, admirably adapted to the fashion and size of the piece. The water bottles, coffee jugs, tobacco jars, perfume burners, etc., are characteristic and elegant; pipe bowls, to be used with long cherry and jasmine sticks (*chibook*), are made in quantities, and largely exported, rivalling a similar manufacture at Constantinople. But if the pieces of native form and decoration have great merit, nothing can be worse than the copies, made in this ware, of European models in Louis XV., candlesticks, etc., only rivalled by the Indian adoption of incongruous European designs, resulting in painful vulgarity. This ware, formed of the slime of the Nile mixed with three parts of earth of Assouan, and properly kneaded, is turned into shape, and after drying in the shade, is ornamented by means of sharp iron tools, with which the surface is cut and scratched away—a patient handiwork well adapted to, and indeed representative of, the character of the meditative Copt or Moslem. Baked first in the cooler part of the bread oven, then coated with cow-dung, the piece is placed upon ignited charcoal, and remains there till the coating is burnt to redness. Those to be coloured red are then rubbed with a mixture of red ochre, called "*Goon-bahar*," and wax, polishing afterwards with a rubber; oil is also used for the purpose. The black is given by again coating the piece with dung paste and burning, Egypt.

* The abstract question of the Indian origin of the Egyptian people and their arts is too remote for more than a passing allusion in a report of this nature.

Egypt. but avoiding flame; polishing with oil or wax, and probably with graphite. In some parts of Egypt, as at Gizeh, the clay is mixed with fine sand of the Nile and waste hemp, kneaded, etc.; at Tayoum and Minieh, the Nile slime is mixed with ashes from the ovens; at Kench, a local earth is mixed with one fourth of similar ashes.

India. 4462 *et seq.* The Indian specimens, again, like the native wares of other countries, are worthy of study, showing, as they do, shapes in which, probably, the parents of pottery were formed. It is curious to note, also, the singular ornamentation of some of these pieces, indicating the native taste for rich effects of gold and silver, but producing rather a tawdry effect. Those projecting heads are reminiscences of early architectural sculpture, as seen on ancient buildings. There is elegance in the form and open work of the outer casing of some water bottles of porous material, and the use of mica scattered on the surface of the clay is a curious mode of enrichment. There is a resemblance to the wares of Egypt in some of the unglazed pieces.

But it is in the case containing glazed pottery from Scinde and other parts of Upper India, that we find even more interesting matter. The turquoise blue, painted on a paste beneath a glaze, which might have been unearthed in Egypt or Phœnicia—a small bottle painted in blue on white—is of the same blood and bone as the ancient wares of Thebes. See also a beautiful rich brown jar, painted with flowers in panels, by means of a white earth or "slip" applied on the surface of the red clay in the consistence of thick cream (the "*pâte-sur-pâte*" of Sèvres); the whole glazed over with yellowish-brown, shows the figures of paler colour in slight relief upon the darker ground. A low vase has similar ornament on plum colour, and a cylindrical jar of brilliant green is a fine example. This mode of decoration occurs on the heavy bronze-coloured and dark-blue porcelain ascribed to Persia, and is also used in China. A few years since it was a novel application at Sèvres, and the present Exhibition is rich in specimens of Messrs. Minton's successful use of this method in the decoration of porcelain. A large assortment of the native pottery of India has still to be arranged in a separate part of the building adjoining the committee and reading rooms of the Horticultural Society. Among these are many examples of the greatest interest, which, however, have been well illustrated by the specimens selected and shown in the ceramic gallery and alluded to above. Upon some pieces the use of grey and of copper-coloured mica in powder, of various degrees of fineness, mixed with, or rubbed upon the clay, is worthy of notice, producing a degree of metallic effect upon the

surface of the piece. But the tiles are very important; some of these are beneath the most northern window of the Pottery Court, and many more are in the separate building. They are in general character precisely similar to, although not so carefully made as, the oriental tiles known as Persian, which adorn the old mosques of Egypt, Syria, Turkey, and Persia; but the mode of decoration upon many of them is remarkable, the figures being executed in *pâte-sur-pâte*, as upon some of the vessels before alluded to. Some have inscriptions impressed or incised on the surface, while on others it is reserved on the dark blue ground. Notice one large inscription with turquoise border, and the zenana windows of open work, each composed of four tiles. The colours used upon them are a rich copper green, a golden brown, dark and turquoise blue, etc. As before said, some of this pottery is precisely similar in composition to that produced in Egypt four thousand years ago. In which country had it and its makers their origin? The antiquary, the artist, and the manufacturer will do well to study these wares. As in their silk and woollen fabrics, their metal work, and other manufactures, an inherent feeling for, and power of producing harmony in the distribution of colour, and in surface decoration exists among the Orientals, which we should study and imitate, if we cannot copy. It is not for us Europeans to establish schools of art in a country the productions of whose remote districts are a school of art in themselves, far more capable of teaching than of being taught. "Physician, heal thyself," might well apply to our presumption, which meets with its reward in the uncomely hybrid offspring of the alliance between Oriental ornament and European form to which we have before alluded, some examples of which may be observed in the Indian Court. India.

We have been promised a contribution of the modern wares of Persia (not yet arrived), collected by H.M.'s representative at Teheran, but fear that their exhibition will be delayed till after the publication of this Report. Among them we may expect a few ancient examples. It is well known that the modern glazed pottery of Persia is as inferior as the old is excellent; but it is, nevertheless, interesting from the fact of its being made upon the old principles, and of its being, in many instances, the very same in composition as the choice old wares of that country and of Syria, but wanting in the artistic care with which they were produced. Neither is there much hope of a revival, for European pottery is entirely superseding the native production. The use of glazed tiles for wall facing is reviving. The ancient and choice specimens are, as in China, highly prized by the wealthy natives, and are extremely difficult to procure. Persia.

Persia.

It seems to be well ascertained that kaolinic porcelain has been made in Persia, but it is of a coarser kind, and inspired by Chinese models. Chinese workmen are said to have been brought into the country by Shah Abbas I. Mr. Jenner, in his letter on this subject to the Commissioners, states: "The Chinese workmen and their successors confined their attention to earthenware, as they could find no kaolin. M. Richard says that the substance he has made use of is a species of felspar. All the porcelain sold as Persian is manufactured for that purpose in China, India, and Java" (? Japan); opinions which do not agree with those of others, neither can we subscribe to them, nor to the statement—"It is worthy of remark that the Persian pottery, even of the best period, has never been anything but a wonderful imitation of foreign models."

China and Japan.

It is to be regretted that we have not any specimens of Chinese earthenware or pottery, not being porcelain, in this Exhibition. In the case of Japanese porcelain under No. 4296 in the Catalogue, may be noticed some teapots and other vessels of a drab coloured, rough and unglazed earthenware, which, however, may be of kaolinic composition in "biscuit." There are also a few pieces of the beautiful "Satsuma" pottery which surprised us at the Exposition of 1867 in Paris. This admirable ware is not well represented here. There is a small teapot painted with figures, a bowl with leafage, and some smaller pieces; another bowl painted in red, with figures, foliage, etc., in finely penciled gilding, appears to us also to be a variety of this manufacture, but we have not closely examined this specimen. It is of a creamy stone-colour, not unlike Wedgwood's Queen's Ware, but warmer, and is covered with an even glaze, which is finely crackled. The pieces are decorated with figures, flowers, leafage, etc., and of varying quality of workmanship, some of which is of great excellence, as the examples also vary in the fineness of their material and make. Gilding and colour are used in the decoration, generally on the natural ground of the piece.

rocco.

Under No. 4160 is exhibited, by Mr. G. Maw, an assortment of Moorish pottery which is worthy of study, although the designs of most of the pieces are sadly deficient in that variety and elegance for which their ancestors were remarkable. The execution is rude and the glazing inferior.

4161. A collection of the ruder wares from various parts of Italy, made for the use of the peasantry, and which was formed by Signor A. Castellani and presented to the South Kensington Museum, is extremely interesting as illustrating the native

pottery of that country. Low in price, it has many good qualities of manufacture, and is withal extremely picturesque and suggestive. The spontaneous dash of rude ornament upon some of the pieces has a highly artistic effect, harmonised and softened as it is by the very pleasing tones of the glaze. The forms of these pieces are for the most part the lineal descendants of the wares of the 15th and 16th centuries, themselves influenced by antique models, with a strain of oriental blood. These simple unpretending pots, like those of India, Egypt, and of Spain, have the elements of greatness in them, and in their simplicity and originality are themselves teachers worthy of attention. There are good stocks among them to graft upon, and if the scion be of an equally honest sort, fine fruit might be borne. From this picture let us look upon the "counterfeit presentment" of a very different nature. Under Nos. 74 to 79, etc., are fluted vases and other pieces in the Franco-Italian style of the last century—very *barocco*—a coarse and inferior reproduction of a debased style, both in regard to form and decoration. These are the two ends of the stick, and we hope it is fully apparent to all our readers as to which is the wrong one. But doubtless there is a market for such things which their price commands, and they must have admirers, who are more blameable than the producer. Italy.

4162. Spain sends us curious and interesting reminiscences of Moorish form in the delicate buff-coloured and unglazed *alcarazzas* or water-coolers, and other vessels, so singularly ornamented by means of a semi-liquid application of the same clay as that of which they are made, as to produce lattice-work, leafage, flowers, and figures, run upon the surface in precisely the same manner as the pastrycook decorates the sugared surface of a cake. We must, nevertheless, bear in mind that one object to be attained is increased surface for evaporation. The soft tone of colour is pleasing, and many of the forms suggestive and elegant. A curious instance of a primitive mode of ornamentation by "jewelling" may be observed on some of these jars, on which small pieces of white quartz are partially embedded in raised bosses of the clay. The mode of colouring and polishing by means of a mixture of red ochre and wax, similar to that adopted on the pottery of Assiout, will also be observed in figures outlined by incisions on the surface. The glazed pieces are also worthy of study, and comparison with the similar wares of Italy. Spain.

Belgium exhibits a case full of vases, dishes, etc., in "majolica," painted for the most part with subjects in the manner of or after works by Rubens and his school; but Rubens' colour is omitted, Belgium.

Belgium. and a smoky tone pervades nearly every piece. They are dashed off in a broad and careless manner, which is more pretentious than excellent, and which, although it may sometimes attract attention, is, we submit, an unhealthy style of art, and not to be commended on the part of those who can do better. The manufacture of some of these pieces is imperfect; the tall central vase, having for subject a dance of nymphs and satyrs, is crazed all over the surface. It and others are painted by De Mol with a free hand, probably inspired by the works of Lessore, and particularly shown in a plate with pastoral subject. Perhaps the best piece is an oval dish by E. Tourteau, after Rubens' battle of the Amazons, by whom also is a plate with the Virgin and Child, after Murillo.

Denmark. 4173 *et seq.* The Danish ornamental pottery exhibited is remarkable for the precision of finish and the good form of the pieces copied from classic models. Some of the reproductions of Greek vases, with red figures on the fine black ground, are among the best we have seen; one, a small amphora of Nolan form, is particularly good; the red figures are heightened and shaded with pigments of lighter or deeper tone. But the pretty effect produced by painting natural flowers on the black ground, is misapplied on classic models and jars with a more rigid taste. The most that might be permitted on such forms would be a necklet, or wreath, falling from the handles, somewhat conventionalised; or similarly treated plants springing from the foot or neck mouldings.

Sweden. 4164. The wares in this section, exhibited by the Gustafsberg Company, and by Rorstrands Aktic Bolag, appear to us to have nothing to recommend them in an artistic point of view. Their qualities as manufactures in respect to price may be of a high order, but it is painful to see such means of production wasted upon models that rival each other in bad taste, and still worse to feel that there must be a market for them.

Portugal. 4163. A prodigality of richness in glaze is displayed upon the surface of these wares, which derive their somewhat exaggerated inspiration from Palissy. The modelling is bold, but coarsely executed. A large fish in a basket, although notably successful in manufacture, is very dead and stiff. The vase covered with masks, snakes, eels, etc., and with cat's head cover, is vulgar and not comic. Some duck jugs are quaint, but the big old duck with a little old duck on her back (not a duckling) is anomalous to the farm-yard and to nature. The tub-full of fish is much better; but the two bulls, modelled after the antique marble in the Vatican, are too strongly coloured and too highly glazed; this application,

though excellent in some respects, is here excessive, having almost the appearance of jelly or melted sugar;—notice the ram's head. A brown vase, after the manner of the old ware of Avignon, is good; nearly all these pieces seem adapted to use as covered dishes, ewers, or bottles. The plates painted with subjects are inferior in drawing and colour. Portugal.

Messrs. Wedgwood's "majolica" (4071 to 4095, etc.) is, like that of Mr. George Jones, Messrs. Minton, and some others, wrongly so called, and might more reasonably be termed "Palissy ware." Some pieces are exceptions, notably a plate with a female bust, the drapery richly lustered in ruby colour, but which, in respect of drawing, is an unhappy caricature of an old piece. Some jugs (4010) in the manner of Nuremberg ware, with mottoes and oval bosses, are quaint, and in some colours agreeable, but it is an unfortunate habit with manufacturers to produce the same design in different colours, for variety, forgetting that what is suitable in one may be offensive in another. England: Wedgwood & Co.

On much of this ware (under No. 4093) the surface is too brilliant, a frequent fault in the modern glaze, by the excess of a good quality. Another great mistake is the use of models designed for other material; thus, Louis XV. and XVI. branches for candles are almost as bad in this ware as in that of Assiout, and the forms designed for Sèvres porcelain can hardly be adapted for this coarser pottery. When will the producing world learn that form, colour, and material, are not universally interchangeable without offence to good taste? What a mistake is that clock with terminal handles, and the same model as a vase! As also the set representing a young satyr, holding fungi of peculiar growth, stuck with shells to receive lights; and last, but not least, how faulty is the colour of the dolphin candlesticks! (4079)

With a higher aim, but equally bad, is the dark blue vase which forms a centre in the opposite case. On this much painstaking care has been misapplied, and the noble subjects of the Chigi Chapel degraded by hard and mechanical handling; the general colouring of this vase is very objectionable.

The "Lorne" tazzas, with gilt handles, and on pedestals, are of a design more suitable for porcelain.

In the next case are pieces of cream-coloured ware by the same manufacturers, which for the most part are painted by the too facile and too careless hand of the talented Lessore (4094). These, with all their faults and follies, have the charm of artistic genius, to which all the labour bestowed upon those more pretentious subjects will never attain.

Hasty and unstudied as are these works of the French artist,

England: Wedgwood & Co.

there are to be found among them touches of charming effect and *naïveté*. The general tone of the two large vases of Urbino form is too pale; there is much white surface "to let," and Lessore shows no power of designing or applying ornament—figure or landscape subjects are his *métier*.

But for a little dryness of surface, and want of that silkiness to the touch which is so remarkable upon the jasper wares of our greatest English potter, and but for a little less sharpness in the smaller medallion subjects, the reproductions from the old models in that material shown by this firm might pass muster among their great-grandfathers' (4047 to 4056). Particularly excellent is the sage-coloured tea service and circular plateau (4109), the latter slightly marred by a spot or two on the surface; a pale blue one of the same pattern is also good. And here we would refer to the advisability on the part of this firm of adopting a distinctive form of stamp with which to impress their name upon, and distinguish these modern pieces. The addition of a date would be both valuable and desirable, so as to counteract the evil doings of unprincipled dealers. We regret to observe on some pieces fire cracks in the reliefs, as in the pale vases with lake medallions, which are sharply and well executed. Some of the dark blue pieces are heavy in colour, and the black ware has in occasional instances rather an oily surface. We are sorry to see also the adoption of designs in this material from metal originals.*

Their reproductions of old forms in marbled and porphyry glaze, with gilt ornaments, are creditable on the whole, though hardly so successful as the jasper. A more novel production is derived from the Chinese, consisting of a fine grained buff or red body, on the unglazed surface of which figures, flowers, etc., in the Chinese and Indian manner, are painted in brilliant enamel colours, gold, etc. Many of these pieces are of considerable merit and pleasing effect.

J. Adams & Co.

John Adams & Co. (4037 to 4046) show some large vases and other examples of "jasper ware," which, though remarkable for the successful manufacture of such large dimension in this material, are bad in point of design and coarse in modelling. Some of the smaller pieces are heavy in colour.

Worcester.

The so-called Della Robbia ware of the Royal Porcelain Works (4110) may show great excellence of manufacturing skill

*Since the above was written, Messrs. Wedgwood have sent in their "Trophy"—a large plateau with centre pieces, candlesticks, etc., for the decoration of the dining table. This is a very excellent work, and of great elegance. Perhaps the tone of colour is too pale and weak to bear contact with flowers, but in delicacy of execution and general effect, it is highly commendable. It, together with other "jasper" ware and some works by Lessore, are exhibited in the Picture Gallery.

but its artistic merit is of another character; we hardly know whether the unhealthy complexion of the fairer skinned, or the impossible swarthiness of their dusky sisters, is the more objectionable, and we fear that the ghost of the great Florentine would shudder as much at this revival of his art, as he might have done at its *decadence*, under his nephew's child. But it is misnamed, for this ware has a much nearer approach to the enamelled pottery of the last century produced in Germany and France, than to that of the modeller of the Resurrection, whose cautious use of colour upon enamelled rilievos might have been followed with advantage. For this reason, perhaps the best example here shown is the central figure in the case, "The Bather," whose lips have escaped that mawkish pink so conspicuous on the busts of the Bacchante and her companion. But when Lucca della Robbia used colour in the accessories, he did so distinctly; and, in this instance, had a more natural treatment been bestowed upon the tree stem, and a better tone given to the drapery, the effect of the whole would have been greatly improved. Worcester.

Good models have been adopted for some of their figures, and they are for the most part sharply and cleanly executed, but the sins of the flesh, and the vanity of attire, in respect of colour, which might have been avoided, are fatal.

Very excellent in respect of modelling and glazing are the two female busts projecting from the surface, each holding a Grecian lamp in her extended hand (4115?); but the creamy colour which may be intended to represent ivory, is not successful. Are these nozzles for candles or gas? If the former, we forget the authority for inserting a candle into the burner of a classic lamp, and call attention to the anomaly from its too frequent occurrence in parallel instances. The squeezes from Clodion's terra-cottas are none the better for being served in glaze and colour never contemplated by that luscious artist.

The reproductions of Oiron or Henri II. ware, by Messrs. Minton & Co. are very excellent, and superior to anything of the kind produced hitherto, or elsewhere. Eight pieces are shown, which, although derived from the originals preserved in collections, are not in any case exact copies, but vary in the transposition of the ornamentation. The two candlesticks—derived from those in the Fountaine, Rothschild, and South Kensington collections—are admirable for execution, but are, perhaps, a little cold and white in general effect; some of the pieces, as the triangular salt cellar, are a little varnishy. Perhaps the most harmonious is the *biberon*, with a dog on the handle. These are each stamped with the maker's and the artist's names, and duly numbered. Messrs. Minton & Co.

Messrs. Minton & Co.

The tazza with brown ground, although an innovation, is very elegant.

Of the artistic majolica produced by Messrs. Minton, two large circular dishes, or "*bacili*," are ably painted over the stanniferous wash, and surfaced with a covering glaze, the "*marzacotto*," of the Italian majolica painters of the sixteenth century, whose process has, in the main, been observed; the central female heads are shaded and modelled in blue, on an orange ground, and shells, flowers, birds, &c., in natural colours, on a dark blue, form the border. Although they are able in execution, we should have preferred a more conventional treatment of such objects, in the manner of the old grotesques, by which they would have been kept more subordinate and conducive to the general harmony of the design.

There are seven plates in this case, the designs of which are derived from well-known ancient Italian examples in the Narford and other collections, with the exception of two, which are from the Persian. These are less remarkable for their execution than for the admirable quality of the blue ground, an effect produced, as we are informed, by the use of a body similar to that of the "Persian" or Damascus wares. We notice on one of these pieces, copied from Mr. Fountaine's beautiful Faenza dish, that on the labels, which, in the original, are occupied by the initials of the artist and the year of its production, Messrs. Minton have judiciously inserted their own name and the date, 1871. It is greatly to be regretted that this prudent course had not always been adopted by the makers of reproductions from ancient originals, by which much imposition on the parts of dishonest vendors might have been counteracted.

In the same case (4155, 4156) are specimens of a new mode of using colours, prepared expressly for the purpose, and producing excellent results. These are in the form of pilgrims' bottles and flattened vases, made of a close body, somewhat approaching that of "Jasper" or of Böttcher ware, on which the painting is executed under a rich and even glaze. These colours have the force and solidity of oil painting, and produce great richness of effect upon the chocolate-coloured ground.

A large number of specimens are exhibited by the same firm, of turquoise, dark-blue, and mulberry purple-coloured ware, of great brilliancy, arising from the use of the pigments specially prepared upon a "Persian" body. Many of these pieces are, however, crazed in the firing, an imperfection which experience may obviate; but among those which are excellent for colour, or have escaped this accident, we would instance a flask with black figures and ornaments on the body and neck, under the glaze; also a large flask of rather weak turquoise; a double vase of dark and turquoise blue,

after a Chinese model; and some others. The purple pigment is very rich in tone. Chinese forms have been taken as the models for the majority of these examples, among which we regret to see some which are of metal in the originals, but are admirable for the skill displayed in the casting and finish of the work, qualities which are entirely lost in the moulded earthenware copy. We would particularly instance a small vase formed as a leaf, gathered together into cup-like form by an encircling cord, the bronze original of which is a marvel of that artistic adaptation of natural objects, for which the Chinese and Japanese are unrivalled, but it is cruelly travestied in pottery. Messrs. Minton & Co.

Of their reproduction of the incised, or "*sgraffiato*" ware of Italy, a vase with serpent handles (4085) and brown body, having black central medallions and grotesque figures, etc., in buff colour, is, perhaps, the best specimen. This manner of decoration was formerly effected by covering the surface of the piece with a lighter coloured slip, through which the outline was incised by an iron tool, and the grounding removed, leaving the subject in low cameo, a glaze then covering the whole.

Two bottles of dark green (4087) with kylins in the same relief, are excellent.

The large "Prometheus" vase (4591), an exaggerated model, decorated by the same mode, is less successful than some other examples.

In the same case are specimens of a similar decoration by Messrs. Maw, of which a cylindrical vase, with yellow-buff figures, is very good; a small vase and a charming covered pot, of turquoise colour, the pattern incised, or moulded, and filled in with the glaze, are also their's; and some tazzas of coarse model, with inlaid ornament of coloured clay. Maw & Co's specimens of "sgraffiata."

This ware is well represented, but not by their Shakespere jug and platter. Two white *Seaux* (4077), with red and gold Chinese bamboo and flower ornament, are good; and a lobed square salt-cellar (4082), in the style of Palissy, is particularly so. No. 334, some noble garden vases, are grouped together in the centre of the gallery, where another example of the "Prometheus" vase is shown by Messrs. Mortlock, although made by Minton; the "Rape of the Sabines," grounded and shaded in a rich blue, which covers the body, is forcibly painted. Another fine piece is an oblong cistern, with boys at either end, and medallion rilievos. The circular fountain with masks, and children in hammocks, is also a noble piece of Pottery; this model is again shown in white and blue Della Robbia ware, of an enamel more like that of the original than any other English reproduction. Messrs. Minton's "majolica."

Messrs. Minton's "majolica."

This so-called "majolica," a child of the Minton Potteries, is not made after the old Italian model; the body is denser, and sometimes coloured, hence the dissimilarity in tone and glaze to the ancient Italian enamelled pottery; it has, in fact, a nearer resemblance to the ware of Palissy.

Thomas Goode & Co.

Messrs. Thomas Goode & Co. exhibit in this division artistic pottery, some of which is of great excellence. Two vases, with snake handles, of "majolica" (4089), are equal to anything of their class; the form is copied from an ancient Urbino model; there is, perhaps, too great a mass of colour in the medallions and their supporting figures, but they are, on the whole, creditable productions in design and painting; the glaze is rather too glossy to please the eye. A flat bottle, with subject of Cupids surrounding a spray of lily, is an able piece of painting by Mr. Coleman, as are also two plates with female heads, whose hair requires a little taming. The other pieces are by a weaker pencil.

G. Jones & Co.

George Jones, of Stoke-on-Trent (4096 and 4154), is a large producer of modern "Majolica" of the extreme realistic school, which, from the demand, would seem to be very popular. Many of his pieces are sharply and well executed, but rather too glary in the glaze. They are of a class of artistic manufacture which, in respect to the modelling of the figures, shows a great improvement during the last few years (witness the two young satyrs supporting a tub), but which we could wish to see still further bettered by some constraint upon the adaptation of natural forms. It is a large subject, upon which much may be said for and against, and the advocates of the realistic may point to ancient Greece, to China, and Japan for authority. But if we take examples of the latter country as instances, we shall find that there is a skill in the adaptation, and a subordination of the natural object to the purpose, which show an artistic perception of a very high order; and it is precisely this sentiment which is required to render a realistic model refined, or, in its absence, to make it vulgar.

Many of these pieces are exaggerated. One of the best examples is a seat, or stand, for a vase, after a Venetian model—a negro boy kneeling (4322) and supporting a circular disk. Many of the sins of this class of wares may be laid to the charge of the great Bernard Palissy, whose productions, rather than Italian majolica, they more nearly approach, but exaggerate.

Tiles.

There is no section of our Ceramic manufactures in this Exhibition more important or more satisfactory, in an artistic and in a commercial point of view, than the glazed tiles for wall surfacing. The use of bricks and tiles, faced with coloured and painted

glazing, was known to the Assyrians and Babylonians, as well as to the Egyptians; and in India, Persia, and Arabia they have been made from a very early period, their use extending also throughout Syria and Turkey. These for the most part were glazed with a silicious or glass glaze; but a stanniferous enamel, to which the oxide of tin gives a white opacity, occurs also on some early examples of Arabian and Persian tiles. By the Saracens, and subsequently by the Moors, their use was introduced into Spain, where in the Mosque of Cordova, and in the Alhambra, and other buildings, their highly decorative effect is well known. Upon some of these, as upon examples from Persia, Arabia, etc., the enrichment of metallic lustre is also freely used. The encaustic tiles of the 13th century, etc., so abundantly produced and used in England, and to less extent in the north of France, for the paving of churches, etc., are of another class of manufacture, the reproduction and successful application of which in our own day are well known; but these do not come within the precincts of this Report. Of the glazed tiles we have admirable specimens manufactured by the Messrs. Maw; W. B. Simpson; Minton & Co.; Minton, Hollins & Co.; R. Minton Taylor, etc. Tiles.

4378. This house shows excellent examples of enamelled tiles, after the manner of the Hispano Moresque; the outline of the pattern is slightly raised, by which the coloured enamels of the figure and the ground are kept distinct. Some pilasters in rilievo, after the manner of the Della Robbia ware, are not so good in colour, and are crazed. Their No. 45 is a rich pattern from the Persian, on turquoise ground, with dark blue and gold, producing a good effect; but here again that difficult turquoise glaze shows crazing. Tiles by Maw & Co

An oblong panel, with grotesques and foliation in rilievo, coloured after nature on a brown ground, is sharp in execution and of good design. Tiles by Copeland & Co.

Our space will not permit us to specify the works of every exhibitor.

4368 *et seq.*, 4383 *et seq.* Worthy of special notice are the very artistic tiles shown by this firm. Their stair railing and wall facing are fine examples, and some of the best things shown; we should have preferred a darker tone to the lower or dadoing tiles, and a little more relief given to the banister cord by colour. Their chimney-piece (4401) of tiles in wood, near the window—fish, etc.—is not so good as that in marble, cleverly painted with vases of flowers. It is a question whether the marble or the wood mounting is in better taste; for the latter we have the authority of Lucca della Robbia, who surrounded his marble sculpture in the Bellosquardo Tiles by W. B. Simpson & Co.

Tiles by W. B. Simpson & Co.

tomb with a framing, or border, of painted tiles in marble casing. The "*tendre*" effect of the painting on four shaped tiles over this chimney-piece is very rich. We question the mixture of tile painting for the large head of Isaiah, with a mosaic ground (4394), and prefer the same subject executed in tesseræ (4367); but the first is probably less costly. We have not room to specify examples, among which their No. 3 is excellent; great softness and richness of colouring, and able, though somewhat loose design (beware of carelessness), are their qualities; but a too frequent crazing of the glaze should be rectified. Their glazed and mat tesseræ for mosaic are well shown in the memorial slab (4370).

Tiles by Minton, Hollins & Co.

4381. These manufacturers are the most abundant exhibitors, and in the greatest variety of excellence, but we only purpose directing attention to some of their striking examples, passing over the more ordinary qualities and patterns. Their No. 130, of Persian pattern, is weak and dull in colour; No. 131 is an example of gilding on tiles, and No. 220 shows central medallions with rilievo figures in white biscuit, on a glazed and coloured ground. Some of those with raised outlines to the pattern, after Moorish models, filled in with enamel colour, are excellent, as likewise are others with fruits in relief, as No. 207, on brown ground, and No. 103, figure subjects in clays of two colours, etc.

Tiles by Minton & Co.

But the greatest success is in the reproduction of Persian patterns by Messrs. Minton & Co. on a Persian body or slip, by which the exquisite transparency and richness of the dark and turquoise blue is obtained. The red pigment, so conspicuous on the Rhodian pottery, is also admirably reproduced. We would particulurly direct attention to their Nos. 283, 102, 104, comprised under their catalogue No. 4318, with the fine large panel covered with white circular discs of Persian flower pattern, in turquoise and dark blue, green, etc., on a light grey grounding, which are among the most satisfactory productions here exhibted.

The slab for stoves in the Urbino style (No. 342) is elegant.

Tiles by R. Minton Taylor.

Mr. R. Minton Taylor is also an exhibitor of tiles of various kinds, under Nos. 4384, 4396, 4431, etc., among which are some of excellent design and manufacture.

Ordinary pottery for domestic use.

The limits of this Report will not permit of an examination of the more ordinary earthenware for domestic use, of which many examples are shown. A case to the right, on entering the Northern Door of the Ceramic Gallery, contains samples of the wares produced by various manufacturers for foreign markets; and near to it, against the wall, is another, filled with ordinary Belgian earthenware.

Ordinary pottery for domestic use.

The productions of Messrs. Bates, Elliot & Co., successors to the old house of Mayer, exhibited under Nos. 4169, 4330, 4435, are important, consisting of earthenware for domestic and commercial purposes.

It is upon wares of this class, so abundantly produced for our own and for foreign markets, that we should gladly hail a still further improvement in form and decoration.

Among the ewers and basins of English make are some in good, but many in very bad, taste. Notice the "Grecian amphora" style, done in finery, but avoid it; see on the other hand a good form (4289), with leafage and flower ornament, in Chinese style, subdued and elegant; it is by Minton.

Summary of results of examination.

The result of our examination is, on the whole, satisfactory, and particularly favourable to our home manufactures. We must, however, not forget that the unhappy state of France precludes her entering the lists, as she might have done. Italy, again, is poorly represented; we have nothing from the Ginori works. Germany and Austria contribute porcelain, but little pottery; and, indeed, that section of ceramic art is meagrely supplied by other nations. We see new applications of colour increasing their brilliancy or their depth, and figure ornament, modelled with more regard to the laws of sculpture. Perhaps harmony in the use of colour is one of our greatest requirements, and would much enhance the technical excellences of our pottery.

The manufacturer should lead the public taste.

It is also hard to blame the manufacturer for ministering to the public taste; but it were well to lead it. What pleases, sells; and we fear that the fault lies more with the consumer. To educate his eye, is the work of our schools of art and our museums, as also of Exhibitions such as this; but, like the pottery, much also depends upon the material and its preparation.

Advantages of marking and dating wares.

We have noticed with pleasure where producers mark their pieces with their names, the more so when dated, particularly in the case of reproductions. For the sake of future history and present honesty, this is well.

And of exhibiting in the maker's name.

For our own part we should also prefer that at exhibitions of this nature, the manufacturer, and not the retailer or owner, should exhibit, unless he do so in the maker's name. It would be more legitimate, and would avoid the awkwardness of finding the same object, in duplicate, under different names.

5th May, 1871.

REPORT ON PORCELAIN

In the International Exhibition of 1871.

By CHARLES MAGNIAC, Esq., M.P.,

AND

R. H. SODEN SMITH, Esq., F.S.A.

Porcelain (Eng.), *Porcelaine, Pourcelaine* (Fr.), *Porcollana, Porcellana* (Port.), *Procellanea* or *Porselatta* (? Lat.)—

A WORD in regard to which philologists are at fault, and there is now little prospect of solving the vexed question of its origin. The Portuguese derivation from the cowrie shell — whether from its external texture having some resemblance to the glaze of oriental porcelain, or from a belief that shells formed a component part of the material of porcelain—was that most generally accepted, until some ruthless antiquary disinterred the word "Pourcelaine" from a document of so early a date as 1360, long anterior to the introduction of "Porcelain" into Europe. The word occurs in an inventory of the effects of the Duc d'Anjou "une escuelle d'une pierre appelée pourcelaine."

That, and other entries of a similar nature, indicate the probability that the stone called "Pourcelaine" was something of the nature of agate, admitting of ornamentation cameo fashion; and before the process of manufacturing the Chinese ware was known, its decoration may have been supposed to have been effected by a similar process. However that may be, "Porcelaine" has now become a household word on the continent for what in this country is more usually called "china," an abbreviation, as to the source or origin of which there can be no doubt. It is this porcelain or "china" which forms the subject of the present Report.

Origin.

First, a few words in regard to its origin and manufacture. A moment's thought will bring home to every mind the need

Origin.

which man has for the utensils made of earth, which in our time are so easily obtainable, and of such convenient form and manufacture that we are led to regard them as though they were naturally at our command. This is not so. Without going back to pre-historic periods, it may fairly be said that the Western States of the world, for upwards of 5,000 years, were content to put up with earthen vessels in the true sense of the word. Some rare exceptions of local manufacture, such as those of Greece and Etruria, may be cited as having a few of the desirable qualities generally wanting; but, to speak broadly, the material manufactured for use or ornament was some kind or another of earth of a plastic and tenacious nature, which, either dried in the sun or burnt in a kiln, served more or less well the purpose for which it was intended. It had, however, the defect of porosity, which rendered it unsuitable for the retention of water, lacked the smoothness of surface necessary for cleanliness—and was liable to be destroyed by heat: moreover, the articles produced from it were of necessity more clumsy and heavy than was desirable for convenient use. Some of these defects were partially obviated by the use of metalliferous glazes applied to the porous earthen body, but the chief one last alluded to, being inherent in the material itself, was insurmountable. For her extrication from this difficulty the West, as in the case of so many other arts and sciences, is indebted to the East. The Portuguese, at that time the maritime traders of the world, about the year 1500, introduced "Porcelain" from China into Europe.

The new ware was at once accepted as capable of supplying a want of the age. Judged by the standard of utility it was light, hard, impervious to water, and capable of supporting great heat. From an artistic point of view it had equal merit, being adapted to the reception of the highest class of ornamentation whether of colour or design. Men's minds were soon directed to the manufacture of this desirable pottery, but so slow was the progress of the discovery, and so limited the then means of intercommunication between nations for mutual enlightenment, that nearly 100 years elapsed before porcelain could be manufactured in Europe. During that period the constant efforts of the European potters resulted in the discovery only of a soft porcelain, superior, it is true, to the earthenware which preceded it, but inferior in every respect save one (viz., a superior capacity for some decorative purposes, as will be hereafter shown), to the true porcelain of the East.

Discovery Europe.

This manufacture (*i.e.*, of soft porcelain) was discovered in Italy by Francis, Grand Duke of Tuscany, in 1581; in England, by Dr. Dwight, at Fulham, in 1671; in France, at St. Cloud, about 1695; while the manufacture of true porcelain in Europe only dates from

about 1710, when it was accomplished by the German chemist Böttcher, at Meissen, in Saxony.

Soft paste.

The two kinds are distinguishable by the terms soft and hard paste, and it will be convenient here to define the special qualities of each. The soft paste is the early manufacture of Europe, and its properties are these—rather close, fine grain, semi-translucid, incapable of supporting great heat, impervious to water, soft and satiny to the touch, fracture clean and white but without crystalline particles, light in hand, of a clear white, and capable of being manufactured of far greater tenuity than earthenware; the glaze delicate, thin, and so tender as to be easily scratched with the steel point, rubbed off by use, and corroded with acid. The composition of soft paste is artificial as compared with that of hard, being a mixture of many ingredients, varying in different factories, and including gypsum, sand, chalk, alum, bones, soap, soda, lime, salt, nitre, etc. The glaze has a metallic base, lead or tin, with the addition of silica and a small quantity of potash or soda. The strongest firing of the biscuit of soft paste takes place previous to the application of the glaze, and the colour and glaze are fixed by a subsequent moderate heat. In consequence of the tenderness of the glaze, the colours applied to soft paste porcelain seem to sink below it and amalgamate better, being free from the super-imposed appearance and dead opacity to be seen particularly in the case of some modern English porcelain.

Hard paste.

Hard paste has a close fine grain, the fracture showing crystalline specks, is translucid, quite impervious to water, and of a clear and brilliant white; is capable of supporting great heat, and of being manufactured of excessive tenuity; sonorous, very brittle, and rather more heavy in hand, bulk for bulk, than the soft paste; the glaze, so hard as to be incorrodible by acid, turns the steel point and wears but little with use.

The composition of the hard paste or true porcelain was, as has been said, the great discovery of Böttcher. The story has been so often told that it need not be repeated here; it is sufficient to specify the materials which form the base, so long and anxiously sought for:—

1. *Kaolin* (*Chinese*) *China Clay* (*English*), the suitability of which, for the manufacture of pottery, was first discovered in China—a whitish earth, containing sparkling grains of quartz, is formed from the disintegration of granitic rock; this is infusible, and preserves its whiteness in a strong heat. Beds of this earth have been discovered in France, Germany, America, and England—in Cornwall and Devon.

Hard paste.

2. *Petuntse* (*Chinese*) *Felspar* (*English*); a stony substance, the base of which is silicate of alumina, in combination with potash, soda, lime and magnesia.

These materials are used in the proportion of equal quantities for the finest, down to one of the former to three of the latter for the commonest wares. The glaze of hard porcelain is composed of the materials of the porcelain itself, but in different proportions, and is fired at a very high temperature, sufficient, in fact, to produce vitrification.

The temperature at which it is necessary to fire the glaze of true porcelain being too high for most of the colours employed, the piece to be decorated is fired for them at a lower temperature, having previously been subjected to an extreme heat for the biscuit and for the glaze. The colours, in consequence, instead of being incorporated with the glaze, remain upon the surface, and thus present an appearance, more or less opaque, according to the firing it has been possible to submit them to, and the comparative hardness of the paste and glaze upon which they are applied.

It would be out of place here to discuss the comparative merits of hard and soft porcelain, but it may be briefly stated that for useful purposes the former has unquestionable superiority, while artistically, although each is equally capable of being fashioned into forms of the highest type, the latter is the more suitable medium for exhibiting delicacy and transparency of colour. On the other hand, where the subject lends itself to accuracy and precision of outline, the hard is not less to be commended than the soft.

Object of Report.

The object of this Report is to illustrate, so far as may be possible, by examples to be found in the Exhibition, the present condition of the manufacture of porcelain. Excellence of workmanship will form a principal consideration in appreciating the articles exhibited, whether for use or ornament. The value of the ingenuity or novelty of invention applied to objects of daily use will be estimated with careful regard to their suitability to fulfil their professed purpose. Those which derive their value from art alone, and others of a useful character to the ornamentation of which art is applied, will be considered with particular reference to form, colour, and decoration.

The most prominent errors of the decorative art of the present day, as evidenced by the works exhibited on former occasions, have been :—

(1). The debasement or misapplication of shapes originally good, or good for special objects.

(2). Want of harmony, weakness, or absolute failure of colour.

(3). Incorrect, vulgar, or excessive decoration, and the mixture of different styles in juxtaposition upon the same object, and in not infrequent cases general want of congruity between the form, the decoration, and the material of which it is made. Object of Report.

It will be a special object to point out how far the faults of the past have on this occasion been overcome, by calling attention to those cases where a successful combination of industrial skill and knowledge of art has led to the production of works worthy to be classed with those of a period whose perfection is now but seldom attained to. It is, nevertheless, a duty to remind manufacturers that there are excellences in their art still to be reached; their best forms are not yet equal in their respective materials to the antique Greek work in fitness of purpose, and purity of outline; their richest colours still fall short of the splendour of the hues which emanated from Sèvres, or even from Chelsea and Worcester in their best days; while modern Orientals retain enough of the traditions of the past to surpass their Western rivals, as witness the Chinese turquoise, the blended purples, and the deep reds yet beyond the skill of European chemists and manufacturers.

We shall have occasion, however, to note with well-earned commendation the progress made by some of the present exhibitors.

Reproductions and imitations.

Great manipulative skill and valuable knowledge of scientific appliances are shown in many of their works; but, while granting this, we are bound to observe that there is evidently a deficiency of inventive capacity. Few new processes of manufacture are brought forward, and novelty is almost limited to the many ingenious imitations of former work and reproductions of the models of past ages. These reproductions are sometimes excellent, and in a few instances, hereafter specified, leave little to be desired in point of accuracy and ingenuity; but it is not to be forgotten that imitators are not originators.

The energy and inventive power of one potter (Josiah Wedgwood) yielded more variety of application and novelty of combination of material than all that is gathered here, while the example he set imparted a vivifying influence to the artists he employed, the effect of which we see in the original creations of form and decoration which bear his impress. A fashion of imitation has possessed the present age, and affects not porcelain alone but all fictile productions. The ingenious imitations of the 16th century majolica, and of Capo di Monte porcelain produced at the Ginori Factory, the copies of Greek vases made at Naples, the Palissy ware made at Tours and elsewhere in France, the reproductions of the old faïences of Rouen, Nevers, Moustiers etc., the

[illegible] and imitations.

imitations of Sèvres, Dresden, etc., exhibited by M. Fischer, and the remarkable collection shown by the inheritors of Wedgwood's name and traditions, are standing proofs of the want of originality for which the present age is so remarkable.

It seems to be forgotten that what was fitted for the use of one time or for purposes of decoration under conditions of life wholly different from the present, is not necessarily appropriate to utility or ornament in the 19th century. Each of the styles mentioned had such individuality that in the objects themselves we read as in a book the date at which they were produced; and the secret of this individuality is that originative or creative genius, which can neither be imparted nor taught, but which, having its source in the imagination, is insensibly directed by education in the true principles of art.

Technical excellence English porcelain.

In regard to excellence of manufacture of objects, both useful and ornamental, there can be no question that, taken as a whole, the English manufacturers yield to none on this score. It is true that they are on their own ground; their collection of works exhibited is large, and that of their foreign rivals is very small in this subdivision; but there is sufficient for comparison, particularly in the case of articles of a useful character artistically decorated.

Their dishes and plates are turned truly circular, showing no indications of warping or distortion from firing; jugs, ewers, basins, etc., have the same even character. Dessert, breakfast, tea, and dinner services have a uniform symmetrical appearance, which would give any one, unacquainted with the process of firing, the notion that they all had been cut by some automatic machine out of a solid lump, each identical with the other. This quality, no doubt, is an excellent one; but may it not be purchased too dear? For it is evident that such excess of precision cannot be produced for nothing, even though the cost be trifling compared with that involved in decoration. Unfortunately the proposal of the Commissioners, that price should form an element for consideration, has been very generally disregarded; it is, therefore, impossible to say to what extent this speciality of British manufacture may be a mistake, or whether the objects exhibited are really, as they profess to be, commercially possible.

There is, no doubt, a certain number of persons to whom price is no object, and in their case it may perhaps be allowable for the manufacturer to gratify his pride by supplying articles by the hundred, identical in size, shape, and weight. There is, however, a class, and that the most important one—viz., the average consumer—whom it is no object to furnish with plates which cannot be

distinguished apart, even with a gauge. He would be quite content with the ever-present gauge of the eye with which to estimate the perfection of his crockery, provided he found his gain in the diminished cost. Without advocating anything like imperfection, or even slovenliness of manufacture, it does seem that there is a limit beyond which it is not necessary to travel, at a considerable cost, with the view of turning out perfect neatness and precision, when less would serve industrial purposes equally well, and better where elegance of form is an element. In the former case it is a question of price; in the latter, even when we are looking at a useful article, does it not frequently strike us that there is a stiffness and newness about the smooth and polished surface, the trim and almost geometrically accurate handle, or the precisely equalised lips of a spout, which we should prefer to be less certainly aware of? Such accuracy induces an involuntary comparison in the mind between the free-hand sketch of the old Italian school and the hard outline of an architectural design; we sigh, if not for a fire flaw to break the uniformity, at least for a taste of the *abandon* of the potters of the Abruzzi, or of Urbino. But accurate *in*exactitude is a rare quality, and is only permissible when it emanates from the exuberant wealth of a perfectly educated hand and eye. Giotto's circle drawn without compass was a circle still, though perhaps not so round as it would have been if drawn by mechanical aid; and who can fail to read the story in a picture of Turner's, although on close inspection it may seem a blurred mass of splashes and blotches. However, in its proper place, good work is an excellent quality, and we may safely congratulate our British manufacturers that, with one notable exception, they have nothing to learn in this respect from anything exhibited.

Technical excellence of English porcelain.

The British useful porcelain is less hard than that made on the continent of Europe: technically it is a soft paste; but, as it is equally light and serviceable, we do not consider that softness a disadvantage.

Here we come to more debatable ground, and we may take a lesson from the work of a neighhouring class. Utilitarian pottery cheaply produced, for every-day use, though it may seem scarcely reasonable to demand from it beauty, may well be made to possess not only correct and elegant but suitable and convenient form. The commonest pots and pitchers from Sicily, Spain, Portugal, Majorca, etc.; the earthenware of Ahmedabad and various parts of India; also of Siout, in Upper Egypt; our own close-textured stoneware from Fulham and Lambeth, are examples showing in various ways excellence of outline, harmony of colour, and propriety of simple decoration. From such sources of manufacture we derive none of those objects which attract attention only by their

Suitability of form.

Suitability of form.

possession of qualities which we should least expect to see in them. "The unexpected congruity of things naturally incongruous" takes possession of our mind for the moment, and the next we find that we have been drawn to them by their singularity and unsuitability for any purpose within the ground they occupy—"Que fait on là dans cette galère?"

What possible suitability can there be in a two-handled Greek vase with a narrow neck, no spout, and an insufficient base, for the daily use of any gentleman or lady of the 19th century? And yet in the department devoted to bedroom furniture may be seen such a vessel, professedly to be used for toilet purposes. It is true that the original of the vase in question was made in ages past for a water-ewer, but then it was to be used by a Grecian nymph, who would empty it regardless of the splashing which was inevitable, but immaterial under the circumstances of her costume; when empty, she would have balanced it upright on her head or shoulder, using either handle with which to steady it. Would this process be convenient now? In the first place, in view of the costume entailed by the character of our climate and the use of carpets, splashing is something to be obviated by the use of a spout. Secondly, vases cannot be carried on the shoulder or head, because doors to open, stairs to ascend, and, worse still, to descend, would render it dangerous; therefore they need a serviceable handle. Thirdly, the ewer of the household requires, at times, to be set safely on its foot. Lastly, water is apt to deposit a sediment, which renders facilities for cleaning necessary—a process that can scarcely be accomplished through the medium of the narrow neck.

Again, in this matter of water jugs, what probability is there that the elaborate and angular affairs, of which examples may also be found, would stand the wear and tear of English household use. To attract the eye by singular and eccentric form and decoration is the resort of mediocrity. If our manufacturers desire to produce *articles de luxe* to attract their rich customers, it is not by oddities that their reputation will be made; or, if a momentary notoriety be attained, it is not by such means that it will be kept.

Suitability of decoration.

In the present day it is so difficult to draw the line between the ornamental and the useful, that criticism is frequently disarmed by an appeal from one of these qualities to the other, but it may safely be laid down as an invariable canon for the guidance of the manufacturer, that any ornament or pretended ornament which militates against, or lessens the usefulness of an article, is misapplied.

The examples referred to are glaring instances, it is true, but

there are many others of minor prominence, although not less to be deprecated. Let the eye run over the cases containing the pieces intended for table use. There can be no more legitimate place for the application of decorative art to objects of utility. Porcelain lends itself, as we have shown, to both purposes; and, without in the slightest degree infringing upon the usefulness of a soup tureen, a dish, or a plate, to say nothing of the minor articles of a dinner or dessert service, colouring may be applied ranging from the delicate cream of Wedgwood, or the pure white of Dresden, to the lovely *bleu de Roi*, *bleu turquoise*, or *rose Du Barry* of Sèvres; decorative painting from a few simple coloured lines, to the marine landscapes of Morin, or the minutely-executed grisaille of Schaper; while forms and shapes, simple in their outline, yet of infinite variety, may be derived from the best conceptions of Italy, of Rome, or of Greece. Suitability of decoration.

Among much that is meritorious—and, indeed, the reverse is generally the exception—forms the most impossible for daily use may here and there be seen. Handles intended to imitate flowers, sticks, ribbons, ropes—but all too well—with so many knobs and excrescences that it is evident they can neither last nor be kept clean. And whence does this arise? From a too servile imitation of the object from which the idea was derived, due to want of imagination and want of skill on the part of the modellers. Is it possible to model a ribbon or a cord so that the ends, edges, and turns, shall not obtrude themselves beyond bounds? Certainly. Look at some of the vases copied from Sèvres originals; the ornamentation, kept subservient to the general outline of the form, serves gracefully to vary a too constant uniformity. Then, as to decorative painting: What more suitable to a dinner-plate (admitting the suitability at all of natural objects for such a purpose) than the semi-conventional flowers of the Bruhl and Marcolini periods of Meissen, which, however beautifully painted and coloured, are strictly subordinate to the main object; what more unsuitable than what is called English flower-painting, which places a *copy* of a real rose, dewdrops and all, in the middle of the gravy? Has the painter still to discover that, paint he never so deftly, the material or medium at his command is incapable of receiving the harmonious and blended tones of oil or water-colours upon canvas or paper, and that it is, therefore, impossible for him, even if it were desirable, to reproduce nature?

A more striking instance of this error can scarcely be found than in the regular stock-supply of "landscape" dessert-plates of English manufacture. Those so-called landscapes, "Raglan Castle," the "Menai Bridge," "Aber Anything," North Wales, duly chronicled on the back, originally feeble sketches of a

Suitability of decoration.

fiddle-faddle period of art, have been copied and re-copied from copies, until they have lost all pretence to anything but their own faded selves. Equally objectionable, in a different style, is the so-called "Watteau" and "Lancret" painting, which comes to us chiefly from the Continent. Groups of ill-drawn and violently-coloured figures characterise these styles, of which we have a notable example from Hungary, which has otherwise contributed some of the best ornamental useful porcelain in the Exhibition.

Such subjects as these—flowers, fruit, landscapes, human beings, however unlike they may be, from their indifferent execution, to any supposed originals, are, if treated unconventionally, wholly unsuited to these positions. A rose, a poppy, or a tulip, on an old Dresden plate, is evidently placed there for decoration, and we have no fear that use will injure it. The same, painted in a too common English style, invariably suggests the fear that it may be cut, or rubbed, or spoilt, or, at any rate, is so little part and parcel of the article upon which we see it, that we judge it by itself, and not as an accessory to the useful object of the article. In short, when ornamentation and utility are found in combination, the only justification for the presence of the former is its subservience to the latter, without which there would be no place for it at all. It is not less so with regard to form; and, as unquestionably in the case of the potters' art, men have succeeded better in imparting elegance of form to objects of utility than in decorating them agreeably, may it not reasonably be inferred that the cause lies in the medium at command?

Suitability of material.

The application of the potters' clay, however fine of its kind, to artistic purposes, as in the case of every other material, whether marble, glass, canvas, or paper, is limited by the qualities inherent in it—that is, by the "défaut de ses qualités." Once recognise this, and the fatal error of attempting the impossible is avoided, and with it the whole crop of eccentricities, incongruities, and imitations which have been resorted to as a means of escape from an indefensible position.

If rules such as these are good for art, as applied to objects of utility, how much more when, setting aside all other considerations, we are asked to weigh the potter by the principles of art alone? Still more in this case should the manufacturer, the artist, or the patron of their skill, define to himself the limit beyond which he should not presume to trespass.

What are all these substances which have been enumerated in connection with art but the vehicles for conveying, through the eye to the mind, the pleasurable sensations which it has the power of imparting? Is it to be supposed that a Landseer, or a Millais

would use oil-paint and canvas if he could produce a better effect by any other means? Why does a Turner or a Hunt use that paper which to others, differently gifted, would prove a bond upon their genius? Because it is the medium best adapted to their purpose, best suited to their style; the complement of their idiosyncrasy. And so the potters' clay has its mediums and gradations, and styles, and variations, even within itself. It is more than probable that the urns of Nola are in no slight degree indebted for their elegantly correct outline to the close-grained texture of the material of which they are composed. On the other hand, the soft, plastic free-working clay, which Palissy could alone make use of, was exactly suited to the rugged, varied, undulated outlines of the *rocaillerie*, of the reptiles, of the fishes, which were sketched in the facile and free-handed manner which was peculiar to himself. Within bounds such as these the variations are endless, but let them not be overpassed. The most striking, and, of late years, the most dangerous approach which has been made to the verge of what is permissible, is the invention and use of the so-called Parian. Intended to supply the place of Carrara marble, its creamy, unctuous texture admirably adapts itself to conveying the idea of the firm yet yielding muscles, and the soft covering of the human frame, while its close, fine grain renders it more suitable than marble itself for figures of a diminished size. But woe to its misapplication, woe to any attempts to vie with marble in subjects of large size where no substitute for marble is possible, and woe also to the abuse of imitations. What more inefficient than the chalky statuettes, which are produced by the score in some foreign factories, even when they only pretend to the careless sketching of draped figures? it is, nevertheless, from such small beginnings that right principles are infringed upon, and a critical attention should be concentrated upon nipping in the bud the first symptoms of new aberrations.

Suitability of material.

It is surprising with what instantaneous rapidity the eye perceives the material of which an object is composed, even under a covering of colour, of decoration, or of gilding; and we seem instinctively to feel that certain forms are adapted, to use a potter's term, to certain bodies. The reason at first may not be apparent, but consideration will point out that the broader the style of form the more open and plastic should be the material. We feel that the sketchy, bold touch, required to mould the sweeping outline, the serpentine handles, and the freely-turned lip of the noble vases and cisterns of Gubbio and Urbino, would be irremediably "cribbed, cabined, and confined," if supplied with the kaolin, which an artist of another kind would fashion with delight into the charming *figurines* and delicate bouquets of Kändler, or the upright and more

Suitability of material.

precise forms of the Louis Seize type. Although the examples are not numerous, in this place it may be well to speak a word of warning in regard to the use of shapes perfect in themselves, but, for the reasons stated, improper to be presented in hard porcelain. Plain surfaces, straight even lines, and sharp edges are admirably rendered by this material. Why then lose the advantages natural to it by the use of forms which derive their character from wholly different qualities?

Suitability of decoration.

But if in respect of form hard porcelain is sometimes misapplied, how much more is it the case with decoration? It may be truly said that there are limits to the capabilities of porcelain as a medium for the reception of the creations of the artist. To want of knowledge and appreciation of this fact is due the absence of effect so frequently seen in its decoration. The cause is not far to seek.

Of soft porcelain the manufacture attained its greatest excellence in the *pâte tendre* of Sèvres, a product fitted by the natural qualities of its material to be receptive of the richest effect of painted decoration, whether of plain colour or of ornamental art, of which any ceramic foundation is capable. The comparatively porous nature of the material admits of the amalgamation of the colours to an extent which is but little surpassed by a water-colour drawing; added to which, the tenderness of the glaze through which the colours seem to sink, imparts the effect of that glazing which, skilfully and delicately used as the last process in oil painting, tones down and harmonises the imperfections due to the mechanical part of the application of colour to canvas. Then, as to the touch or "manner" proper for painting on porcelain. Recurring to the illustration drawn from the practice of our best masters in oil painting, the "manner" of Turner and that of Maclise may be taken as the including limits within which all others are comprised—the one depicting form by the harmonious blending of colours, "each under each," rising from the weakest to a centre of effort unapproached at least by any British artist; the other, depending upon the strictest accuracy of drawing to convey his meaning, frequently disregarded the value of his colours, certain that his correct, hard, never-failing outline would keep constantly before the eye the minutest details of the scene depicted. Upon soft paste the first of these manners may be applied with certainty and effect.

Glance at the cases of faïence adjoining, particularly to those founded upon the works of Italy. We see broad, bold, sweeping outlines, and masses of colour not too rigidly discriminative, but applied with such masterly knowledge as to convey the story as completely as an antique torso or a broken column enables us to

complete in our mind's eye the original of the fragment before us; no stippling and no reliance on details; either process equally unsuited to the semi-porous surface of the body of such ware. Thence to the finer grain of soft paste porcelain is a descent—considerable, it is true—not, however, so great but that a comparatively modified treatment or "manner" is quite within the grasp of the artist's hand. Suitability of decoration.

That this is the case, witness the lovely landscapes, sea-pieces, and groups upon Sèvres vases which, although necessarily painted in a small space, are touched and treated as broadly as a picture of ten times the size, many of them giving the same extraordinary effect when magnified as a picture of Meissonier seen through a lens. Success was achieved because the manner employed to fix the conception was made to suit the medium.

But the effect upon the decoration of porcelain, harder than the old *pâte tendre*, has been disastrous. Possessing qualities exactly the reverse of those of faïence and of soft paste, admitting of no sinking in or effect of glaze upon the colour, and needing to be fired at such an excessive heat as greatly to limit the tints at command of the artist, a totally different "manner" was evidently needed. Unfortunately, the tradition of Sèvres has been too strong for those into whose hands the art fell. They had heard that the painting on Sèvres china was the highest class of decorative art applied to baked clay, and with a different material attempted to reach the same goal. Our British artists especially attempt this labour of Sisyphus, depriving themselves of the advantage of their own position in the endeavour to attain an impossible object. Their aim appears to be to *reproduce* natural objects—say a fruit or flower. To do this they require all the resources of drawing and colour; but the latter, as has been shown, they cannot have. How all too little is the glowing and almost boundless palette of Miss Mutrie to represent a rose or even a lily; but, with not a tithe of such means at command, we see never-ceasing attempts to depict upon porcelain—without the possibility of obtaining subtle gradations of tint, without glazing, without shadows, even without some of the essential colours—the most brilliant productions of nature.

The decoration of oriental porcelain, particularly upon specimens of the more ancient Chinese or Japanese fabric, may serve as a useful model for the adaptation of means to an end. Its main characteristics are a clear incisive touch, and colours blended, not by their juxtaposition and amalgamation by means of half tints, but harmonious from their correctly chromatic application. This latter quality, whether natural or acquired it is difficult to say, is incontestably existent, not only in works of porcelain, but in every work of Eastern origin dependent upon colour for decoration.

Artists' names.

It would have been a labour of love to have been able to record the names of many of the artists whose works are here exhibited on a material not less imperishable than canvas or paper. The absence of information on this point is much to be deplored, but we hope that the list of names added at the end of the Report will be found nearly complete. The artist decorator of porcelain is as much entitled to the reward which he would derive from public approbation, as the painter or the sculptor whose individuality is immortalised in the works of his genius.

General progress.

There is, happily, in this Exhibition fair evidence that the work of the last twenty years is beginning to bear fruit. It is to be regretted that we have nothing from abroad at all equal to the good time of Meissen, Höchst, or Vienna, but examples are to be found in the South Kensington Museum which our artists will do well to study. They will see that a knowledge of drawing and the power of putting in a firm and accurate outline are indispensable. A knowledge of colour is not less so, for the painter on porcelain must not rely upon nice gradations of tint to secure harmony of effect. It is to be gained in the main by a scientific application of unbroken colours, or at least of those at his command—not by diminishing strength, but by the neutralisation, of that which is too powerful by something equally strong or stronger. The colouring of the French school of the present day, though delicate and pretty, is weak and ineffective—rejoicing in celadon and pale pink, and lavender, and the green of spring. Notwithstanding that, and, indeed, perhaps because of it, our English painters err in the opposite extreme. There is more hope of them; it is more easy to reduce than to increase—to dilute than to strengthen. But we must have this violence mastered. No one can fail to observe that modern porcelain has a rawness and glitter about it which is not present in the old. In fact, it *looks* new. Now, there is no occasion whatever why this should be its quality. Set up a piece of old Sèvres in a room, it stands out alone from everything else—like a gentleman in a mob.* Examined separately, there is a quiet and subdued tone about it, although to all intents and purposes as new as on the day it was made. Even the best of our English makers overdo glaze; but what is to be said of those pieces of modern invention, so plastered over with a peculiar shiny mother-of-pearl-looking composition, that not only is all sharpness of design lost, but frequently the design itself? A substance, valuable

Glaze: its excess.

* We owe the introduction of our taste for, and knowledge of, Sèvres china in England, in a great degree to King George IV.—ED.

if used with discretion, has been so misapplied as to render it common and vulgar. It seems to be supposed that no one can ever see enough of it, and it is applied at random over all parts of an object, outside and inside; whereas, if restricted to the inside of shell-shaped pieces, for example, or to certain portions of others, it might be effective. In the coloured earthenware in the style of majolica and of Palissy, and in the Portuguese ware, models of animals, etc., this excessive glazing is again much in fault, and, as if this were not enough, some have even gone so far as to vulgarise by its use the miniature reproductions of classic subjects in parian! The reasons against the application of glaze to sculpture are so self-evident, that it need merely be pointed out that clearness of outline is the chief aim, and for this the dead white of Carrara marble and of parian are admirably adapted. Glaze of necessity blunts the real outline by rounding it and making it coarse, while the apparent one is as effectually confused by the various reflections of light from the shiny surface. Modern gilding, too, is a never-failing sign of modern work. As if to make the most of it, it is in many cases worked up to the appearance of metal itself. The directors of the Dresden Factory always carried gilding to an extreme, and while they still maintain the same practice, unfortunately our own manufacturers have brought the burnishing process to such perfection that bright lines of gold frequently catch the eye more quickly than the ornamentation it was intended to frame and "throw up." For examples of the application of gilding as a most valuable adjunct to the adornment of porcelain, we must look to old Sèvres and oriental. Notwithstanding that in the former instance it was laid on even with prodigality of substance, the effect is always a subdued one, serving to enhance, not to overcome, the decoration around or upon which it was placed. The discovery, about 1780, of amalgam gilding did much in England to induce a flimsy, meretricious style—looking, as it was, cheap, and although glittering, not gold.

Glaze: its excuse.

Gilding.

Reference will hereafter be made to objects decorated by the *pâte-sur-pâte* process. This and the use of enamel colours seems to open up a vast field for the artistic decoration of porcelain. After an inspection of Messrs. Minton's beautiful vase (case No. 111), although there are imperfections present, due to the strangeness of the medium and certain eccentricities in the colours used for the ground, it will readily be admitted that the frieze of Cupids is suggestive of a style and method, the limits of which we at least are far from at present. The enamel colours, too, are capable of imparting an appearance of richness and solidity which admirably adapts them for use in large and bold decoration, and they also

Pâte-sur-pâte and enamel colours.

ought to prove valuable adjuncts to the other means leading to the one end—viz., the application of the resources of art to the manufacture of every object suitable to the decoration of the homes we live in.

Examples in the Exhibition.

In the following observations upon the works exhibited, the names of exhibitors from Great Britain are placed alphabetically. The specimens shown by foreign countries are taken next in order, the countries represented being Denmark, Sweden, Germany, Hungary, China, and Japan.

One country, alas! is wanting from our list, and that the one to which Great Britain is most indebted for the impulse given to her manufacturing art, the fruits of which we are now enabled to contemplate with so much well-founded satisfaction. France, so eminent in the application of art to useful objects, sends no porcelain to this Exhibition. It would be only out of place here to dilate upon the cause, but it is permissible to express our sympathy, and the hope that her national trial and affliction are about to cease. The occasion may not be far distant when our manufacturers may again meet her's in honourable rivalry; they must be prepared, when they do so, for dangerous competitors. The tradition of past generations of art-workers still lives in France, and is kept alive not only by countless examples of their skill, happily preserved in many noble museums, but also by a systematised education of artists which alone is capable of directing onward in its proper course, and maintaining constant, a National School of Art.

Great Britain: various manufacturers, in alphabetical order.

Thomas Barlow exhibits dessert services; porcelain excellent; the decoration of leaves of various plants in their natural colour, painted, if their too naturalistic treatment be forgiven, with remarkable skill, the vine leaves being best both in arrangement and tint. These are of uncommon merit, as examples of transparent and well-chosen colour, free from the crudity and tendency to opacity which is too often the fault of any considerable mass of green applied to porcelain. The begonia leaf on a raised dessert tazza is also very well painted. The quality of the transparent paste of the cups and saucers deserves to be noted for perfection of manufacture.

Dessert plates are shown having an octagon form, placed, as it were, over a circular one. The effect is by no means satisfactory, and the pierced borders of some of them make the mistake still more palpable. The flower and other painting on several of these plates is effective.

Battam & Son exhibit (in case No. 118) a vase painted with arabesques and masks in grisaille, in the style of the Limoges enamels of the 16th century. The decoration, though hard in

Great Britain various manufacturers, in alphabetical order.

outline—due to the material to which it is applied having been too much for the artist—is good, but the gilt handles are badly designed and badly gilt. They also show a vase, the ground of which is of a dark greenish hue—a most excellent and successful colour; but the effect as a whole is spoilt by the indifferent medallion painting of a head which does not harmonise in colour or treatment with the rest of the work. The pink log-wood-coloured vases and some other pieces by these manufacturers are far from commendable.

Boucher, Guy & Co. exhibit a large pair of vases and covers, grounded with scale pattern, bleu de Roi above and below, with medallions of trophies on reddish ground. The manufacture is good, but the ornamentation is an incongruous mixture of different styles, and the effect of the whole monotonous. They also show, among various other specimens, teacups and saucers well painted, with subjects of tropical birds.

Lewis Brown exhibits cups and saucers of porcelain, extremely thin and delicate in texture. In order to raise the cups slightly out of the saucer and keep them from standing in a small pool of tea, ready to drop when the cup is lifted, low rests or legs are moulded to the base. The plan is better, being more simple, than that shown by Dr. Price, where the saucers are formed with raised centre supports, but it is doubtful whether either is of practical value.

Brownfield & Son exhibit a dessert tazza painted with the wild dianthus, remarkably well done. Other specimens, with tropical birds and flowers, admirably drawn and coloured. Raised tazza with ribbon edges, which are a mistake, though the blunder of making porcelain ribbons is not as great here as in placing them bowed out into impossible rigidity for handles by which to lift a heavy water jug. The ribbon edges, however, enclose, on this piece, some charmingly-painted heath and ferns. A plate is shown on which is a landscape in colour, a work most creditable to the artist. Another, on which are represented a camelia and azalea blossoms, is also very good.

Copeland & Sons exhibit parian and porcelain, both of the highest excellence in composition and manufacture. The group of Ino and the infant Bacchus, after Foley's marble original, in the possession of the Earl of Ellesmere, is a good example of the former, and one of the most successful pieces of fictile statuary shown. It is, however, an old acquaintance, having been seen at previous exhibitions. The statuettes of Evangeline, of Marguerite, of Emily and the Doe, the last by G. M. Miller, are successful; that entitled Chastity is less so. A large figure, about 2 feet 6 inches high, of Sappho, after Theed, is well executed, as is also the statuette named Egeria. A raised tazza, formed of three shells, supported

Great Britain: various manufacturers, in alphabetical order.

by Cupids, is enriched with gold and slightly tinted; the effect is pleasing. A lofty centre-piece is shown, of ambitious design, sustained at the base by four seated figures representing the four quarters of the globe. The whole is completed with the skill of manufacture of which these exhibitors have given so many notable examples. The beauty of the texture of their parian especially, is not surpassed by any yet produced at home or abroad.

Among the larger pieces of porcelain shown is a centre vase of unusual dimensions—a difficult piece of manufacture, most successfully accomplished. The gilt handles are formed of satyrs, bearing fruit swags; and a Cupid, resting on an escutcheon, surmounts the lid. The masses of flowers with which the body of the vase is decorated are painted in the impossible style which aims at reproducing nature; they are also somewhat crowded, and though the piece is, no doubt, a very remarkable one, the effect of the whole is heavy. In the attempt to represent each individual leaf the general result has been lost sight of, and there follows an unbroken uniformity which it requires careful inspection to decipher. It should be remembered that arrangement and co-ordination are requisite for the proper grouping of a garland of flowers, and are not less necessary in their way than in the case of an historical picture. A small stand, for a night-light, is very successfully reproduced from an old Sèvres model; the difficult green ground has come out fairly well, and it should be noticed as an exceptional merit that the gilding is rich, and at the same time quiet. This is an excellent piece of work.

A pair of small vases, of the reddish colour known as *lie de vin*, are also good in tone; a beautiful colour has been produced, and here again the rich and quiet gilding enhances the effect instead of marring it by over glitter; a larger pair, in similar style, may also be commended. Several specimens, vases, etc., are shown with pale green ground, on which the raised gilding is applied with judgment. A pair of oviform vases are painted with wild flowers and grasses, extremely well represented, but there is a striking want of harmony in the colours both of the ground and of the decoration, arising from the sharp contrast of the cold white of the body with the Rose de Pompadour bands above and below. Another pair, seeming to be painted by the same hand, and also well done, have gilt handles with imitation rings, which are, and look, unmeaning.

A set of twelve dessert plates are shown, with celadon border, the centres enriched with bouquets of flowers, beautifully executed; another set, with perforated edges, which aid in giving lightness of appearance, are painted in enamel colours, and with excellent effect. This process is here applied with great skill, fruits, birds, and

insects, being remarkably well painted. Other plates, with figure subjects more elaborate, are not so successful in effect of colour; two in monochrome of pink, with grasses, etc., are good and cheap. Garniture of vases and ewers, celadon ground enriched with gilding, with figures in black on white, of which the effect is by no means pleasing—an attempt at adaptation from Greek models, which is here wholly misplaced—all serve to illustrate what has been insisted on in the preliminary remarks, that what is suitable in one place is not necessarily so in all. Great Britain: various manufacturers, in alphabetical order.

Centre-piece, with candelabrum, consisting of a female figure in parian sustaining a branch for four lights, shows the usual excellence of material, but is unsatisfactory in design.

A pair of bottles, in pale celadon, with ornaments of birds, sprays, etc., in gold, is preferable as regards the gilding, to many specimens exhibited; in these the gold is subdued in tone, and kept in harmony with the general effect of the object by not being over burnished.

Messrs. Copeland and a few other exhibitors have given the prices of the objects they exhibit; it would have been well had all done so. In some cases, no doubt, exhibitors have refrained from affixing a price, as they have no intention or desire of selling the specimens shown here, but these are exceptional instances; the rule might in general have been observed.

G. J. Cox exhibits plates with representations of natural ferns, fuci, etc., some of them cleverly imitated from nature, but perhaps more fitted for botanical illustrations than for decoration on china. The plates are manufactured by Messrs. Minton.

Messrs. Daniell exhibit vases of old forms, chiefly derived from Sèvres. The technical qualities of manufacture are of a high order, but the forms are not successfully reproduced, and the glitter of the gilding would require much toning down before the effect can be satisfactory. One pair, with pale turquoise ground, may justly be excepted from this criticism; they are ornamented with ferns, butterflies, etc., in plain *mat* gold, and the effect is very rich. They also show plates with edges in bleu de Roi; the gilding extremely rich in effect, and the medallions of flowers delicately painted. The set of plates, with a medallion on the edge of each, from which depend or branch flower wreaths, are good for the colour of the celadon ground, but the design of the flower wreaths is inappropriate to its position. The pale turquoise, or bleu celeste, of these manufactures should be noticed for its excellence; the bleu de Roi is also rich, but unfortunately justice has not been always done to these fine colours by the designs of the vases, etc., on which they are employed. Occasionally the style of decoration resembles that in vogue some thirty years ago,

Great Britain: various manufacturers, in alphabetical order.

characterised by minuteness and neatness of execution, but wanting in breadth of tone, and giving only a spotty effect of prettiness to the objects.

R. P. Daniell exhibits a déjeûner service, with clever views of Mentmore, carefully painted by C. Palmère, after designs by the exhibitor and Mr. J. G. Rowe; also specimens of a dessert service, by the same artists, with ambitious subjects, representing the heroines of Shakespeare. The production of such works, under the necessary restrictions imposed by painting on porcelain of this nature, is beyond the range of this art, and had far better be left unattempted. Even the colours of the landscapes have the dryness of surface commonly seen in the paintings on Crown Derby of the beginning of the present century, but never occurring on the pâte tendre of Sèvres.

Goode & Co. exhibit a déjeûner service of excellent manufacture, decorated with medallion portraits of the Queen and Royal Family. These portraits are painted by Mr. W. J. Goode. Also a dessert service, previously known for the remarkable excellence of some of its painting. The cavette of the plates is in turquoise of beautiful colour; the centres painted by Mr. Mitchell, with animals and other subjects. The animal painting is remarkably good, taken, for the most part, from popular pictures after Landseer, executed with skill; the landscapes are generally inferior. The paste of this service—soft in quality—is of great excellence, the glazing even and satisfactory, and the effect of the painting is softer and more harmonious than is ordinarily the case. The porcelain is, in fact, intermediate between the early soft paste and the ordinary hard; superior to the former for practical use, but not equal to it for decorative capabilities. These services are manufactured by Messrs. Minton.

Mr. W. J. Goode exhibits plates, etc., with etchings in monochrome, of subjects in the manner of Karl du Jardin, etc. In this process the glaze is eaten through by acid, and the lines thus produced filled with colour. It is a style of decoration of which a good deal may be made, and it is well suited to the quality of English porcelain.

Messrs. Kerr's important series of works are noticed under Worcester Royal Porcelain Works.

Minton & Co., Stoke-on-Trent, exhibit porcelain and parian, both of the highest quality of excellence of manufacture—the former especially shown in great variety of design and application, and including specimens on which it is satisfactory to be able to bestow marked commendation. These manufacturers have attained to a perfection of colour which deserves especial mention, and it is not less worthy of notice that, while really vivid and splendid, their

colours possess, in several examples, that merit of harmony which is so conspicuous in the ancient productions of the East. A series of small trial vases are particularly to be noted. Some of these are most satisfactory, and show an appreciation of true colour and a power of combining its effects, hitherto rare or almost unknown to European manufacturers. Other special examples will be pointed out while reviewing in detail the more important objects exhibited. Among new or recent processes of manufacture may be mentioned the painting in enamel colours, as they may be called, brought into use by this firm during the last two years. This method, long known to oriental artists, and in some degree imitated during the last century at Dresden, and at Bristol and Bow, is capable of producing a very brilliant effect, as may be seen on the turquoise blue cylindrical vase, and the pilgrim bottles in cases Nos. 110 and 112.

Great Britain: various manufacturers, in alphabetical order.

They have also introduced a new process of gilding, which consists in eating through the glaze of the porcelain with acid, and then applying the gold upon the biscuit. By this means the greatest durability is assured to the gilding, which holds well on the biscuit and is also less exposed to friction during use. The process is a valuable one in its place for useful decoration, but having the recommendation of remarkable cheapness, will no doubt be applied to objects pretending to "Art," so called, with the inevitable result attending cheap substitutes, viz., failure.

Among the specimens to be noted are:—

A pair of large centre vases, pieces of importance, decorated in turquoise and gold, the centre portions painted with landscape subjects. The turquoise is good, although in no instance does this colour, excellent as it is, quite equal that with which it is obviously meant to compete—the old pâte tendre of Sèvres; nor, on the other hand, does it reach the quality of the best oriental turquoise crackle vases. The foot of these vases is well modelled, but the painting, though evidently the work of a skilful artist, is inappropriate in its style to the material on which it is employed.

A pair of vases decorated with subjects—one nymphs and Cupids, the other groups of Cupids—the work of Mr. Yahn, are beautifully painted, but neither their form nor the general effect can be considered satisfactory. The vase after a Sèvres model, covered with elaborate groups of Cupids, is by the same artist. A pair of spill vases (case No. 110), are the most successful specimens of the Rose de Pompadour shown in the collection, a colour difficult to produce, and, perhaps, still more difficult to harmonise with others.

Many specimens are exhibited of the method of decorating hard porcelain, known by the Sèvres denomination of "*pâte-sur-pâte*," *i.e.*, "paste upon paste." This name sufficiently indicates the

Great Britain: various manufacturers, in alphabetical order.

nature of the process, which will, however, be better understood by M. Arnoux's description in his Report on Pottery in the Paris Exhibition of 1867:—"It consists in staining the body of the hard porcelain, etc.; and when the piece is still in the clay state, to paint, or rather model upon it with the brush, using the white body of the porcelain as the pigment, and taking advantage of the transparency it will acquire when fired, to produce an effect similar to that obtained in the Limoges enamels by working the semi-transparent enamel on a black ground. Consequently, the artist will increase the thickness of the white clay for the high lights, and decrease it where the colour of the ground is to be seen through." This method of decoration, derived from the Chinese, has been brought to great perfection at the Imperial Manufactory at Sèvres. The most notable example of its use shown here is the large vase in case No. 111. Round the centre of this, on a black ground, are painted with great skill, graceful little Cupids encircling it hand-in-hand. These are better designed than the two larger figures, who endeavour to break through the ring; altogether, a charming circle of artistic ornament is produced. A very practised and dexterous hand was needed to bring to such perfection this difficult work. M. Solon—perhaps better known in connection with Paris art-manufacture as M. Millés—is the artist. The effect of the whole would have been more pleasing had cheerful colours, instead of the black, the brown, and somewhat opaque green and blue of the other portions of the vase, been chosen to aid a subject where a joyous lightness of effect is meant to be conveyed. The foot of this vase is insufficient for its bulk, and the eye is thus offended by an apparent want of stability.

Owing to the high temperature required in the firing, but few colours are possible in this process, and these have been obtained by the use of oxide of chrome, cobalt, nickel, uranium, etc.; by this means, besides the celadon—the earliest attempted tint—there are shown here examples of deep blue, chocolate, black and other grounds.

A small flattened circular bottle, with Cupid seated in a spider-web, and another representing him enclosed in a net, are curious specimens of ingenuity in the employment of this difficult process. The small celadon vases are beautifully painted and very elegant. Another vase of angular form, derived from the Chinese, and evidently originating from a bronze, is a beautiful specimen of graceful decoration. M. Solon has here introduced Cupid heads in medallions on a dark greenish ground with excellent effect.

The large vase, after an antique Roman model in the British Museum, with central band of bold arabesques in white on a black ground, is a favourable example of the same style of enrichment,

Great Britain: various manufacturers, in alphabetical order.

used in a manner that admits of almost mechanical reproduction. The foot of black imitation-wood is a mistake. In this case is also shown a small jug of somewhat globular form, suggested by the antique, and well decorated in a simple style that suits its form. In front is a medallion of a beautiful female head. Altogether, this little jug is a very successful piece, both in design and execution. Here, also, are shown the small trial pieces, a series of little vases already alluded to. They are admirable in colour; one in which greens and blues are brought together with harmonious effect that is common in Eastern work, and rare elsewhere; another, with blended smeltz colouring; another, pale blue with black ornament—all good.

A very remarkable object is also included in this case—a large vase, with steel mounts, damascened in gold and silver, which comes more fairly within the class of metal work than that of porcelain. The mounts were made in Spain by M. Zuluoaga, of Madrid, and as they only were completed shortly before the Exhibition, it was impossible to bring the porcelain vase into such complete harmony with them as would otherwise have been the case. Other specimens of this artist's work are shown in the Fine Art Gallery.

Pair of pilgrim or double-handled bottles, with thorn flowers and butterfly—beautifully painted in enamel colours on fine turquoise ground; most successful examples. Also a pair of small vases, of same ground, colour, and style, decorated with wild rose blossoms and its scarlet fruit; the effect excellent. Another pair of pilgrim bottles, one with parrot, the companion piece with cockatoo, well painted by Mr. J. Slater. The lemon crest has not come out quite pure in colour. A pair of vases of oriental form, angular, derived originally from bronze. These have circular medallions of the most vivid colours, brought out in great perfection on the turquoise ground.

Flower-holders, in form of Chinese boats, with open work of ivory china, showing the great excellence of the paste and brilliancy, rather excessive occasionally, of the glaze. In cases No. 112 and 113 are shown two very large vases of oriental form, in imitation of Chinese cloisonné enamel. The number and variety, as well as the perfection of the colours, here successfully fixed, deserve remark, but the effect of the whole is wanting in repose, and is somewhat gaudy. A tall cylindrical "spill" vase and stand in the Chinese style, shown in case No. 110, is the finest piece of turquoise colour in the Exhibition, the effect of the blue being enhanced by the brilliant painting in enamel colours of the birds and apple blossoms with which it is ornamented. The small pilgrim bottle (case No. 110), painted with flowers on blue, is another successful example of colour.

Great Britain: various manufacturers, in alphabetical order.

In case No. 67, a celadon cup and saucer should be noted for excellent quality and delicacy of texture; also a small double-handled cup. Those with edges enriched with gold are specimens of the new process of gilding already described; others with medallions in gold are also good examples. Some with turquoise edges are effective and good in colour, and from the method by which the gold is applied, so that its surface is somewhat lowered in comparison with the colour, its durability will much surpass that of the gilding in ordinary use.

Coffee cups are shown with oval, somewhat shell-shaped, stands, forming in one piece saucer and small plate; the idea is a convenient one, and is well carried out. In the same case (exhibited by M. Tupper), is a cup painted with fishing flies and hooks, as unfit objects of imitation as could well be selected for such a purpose.

The *cabaret*, or déjeûner service, in style of old Dresden, painted in pink, with subjects in manner of Lancret; the paste is very good, and the colour successful, but the handling of the subject is deficient in the spirit of that artist. Another cabaret, also in the style of old Dresden, but painted with birds, has a teapot and sugar-basin, very good, but the tray is ill-designed, following perhaps too closely the form of the original. It is satisfactory to see efforts made, and, in some instances hereafter noticed, with remarkable success, to reproduce the excellence of the products of the great porcelain factories of the last century; but it would be well for the producers to bear in mind that although designs now unequalled emanated from Sèvres, Dresden, Chelsea, and elsewhere, there were others very inferior and unworthy of the skilful decoration bestowed upon them. Manufacturers of porcelain may take warning from the chaotic state to which efforts at mere imitation have brought some other arts in the present day, to be cautious how they spend their resources on striving to mimic forms and ornament, originally fulfilling conditions which no longer exist.

In addition to the specimens exhibited by Messrs. Minton themselves, there are important examples of their manufactures shown by various other contributors, as by Messrs. Mortlock, Goode, and others. These are noticed under the names of their respective exhibitors.

Messrs. Mortlock exhibit, among their smaller objects, shell-shaped salt-cellars in the style of old Plymouth porcelain, which they much surpass in skill of manufacture.

Some of the plates shown by the same firm painted with various delicate orchidaceous plants are very beautifully executed. White dessert baskets are also shown, extremely well manufactured; baskets have always been a favourite trial of skill among potters, in the production of which Wedgwood, Mayer, and the Leeds potters of

Great Britain: various manufacturers, in alphabetical order.

the last century loved to exercise their ingenuity; these, however, and the plates to match, are in the style of old Dresden, and are perforated, a more legitimate use of the material than putting it together as though it were woven. Cups and saucers are exhibited in a style suggested by old Chantilly—very good in quality, and at least neat in decoration. Dessert plates or platters, in imitation of wood, with oak-leaves at the base, have passed the limit of good design in the character of their imitation, as have also the dessert tazzas which match them.

Pellatt & Co. exhibit basins and two-handled vases, instead of the ordinary jug. These are named amphoræ, somewhat unfortunately, as the ancient amphora was pointed below, and could not stand upright. One of these vases, with pink ground, has ornament of grasses, etc., in white, very delicately executed.

Phillips & Pearce exhibit a candelabrum of turquoise blue, and much gilding, respecting which the remark has to be repeated that the manufacture is far ahead of the design: imitation gold tassels of porcelain, with metal knobs depending from them, are not a style of ornament that can be commended, especially as the exigencies of the material sometimes do not even allow these tassels to appear as though they could hang straight. The metal chains with which these candelabra are hung are a great mistake. A candelabrum for four lights is exposed to the same criticism; but the flower-stand at its base is a convenient contrivance for the present method of arranging dinner tables. A turquoise and gold flower-pot stand has the tassel ornament again introduced, not to advantage. Two tankards are shown with imitation metal bands round the drum, beneath which the painting is supposed to pass; the drawing and design of the passion-flowers on one of these may be noted as good. The lavish use of glaze on the flower-holders is a mistake; all nicety of modelling disappears beneath its glitter. The designs of some of them are at least very convenient; but these articles have too much the appearance of a toy to entitle them to be classified as works in porcelain.

Powell & Bishop exhibit dessert tazzas of good manufacture and successful decoration. Some of these specimens are mounted in gilt metal, but are not improved thereby. The plates with flowers and insects keep more fairly within the limit of decoration than some other pieces exhibited, on which uncomfortable buzzing and creeping things appear that might be alarming to weak nerves were it not for the undoubted fact that they were dead, and dried up, before they sat for their pictures. Some wild violets on one of these exhibitors' plates are very prettily painted, but, as has been previously remarked of similar work, rather treated as botanical specimens than as decoration

Great Britain: various manufacturers, in alphabetical order.

Dr. Price exhibits cups and saucers which have been already alluded to; the saucers are distinguished by having four raised portions in the centre in which the cup stands, in order to keep it dry. The specimens of this contrivance are manufactured by Copeland & Son.

Rose & Co. exhibit dessert and other plates of fine quality of porcelain, some of the colours on which are remarkable for the manufacturing excellence of brightness and clearness of tone. They have a jug and basin, with groups of storks and pelicans, drawn with much spirit, and well painted, but not very fitly placed in their present position. Another, almost equally clever in execution, with fish and water-plants, is scarcely more happy in design in that respect.

Soane & Smith exhibit breakfast cups and saucers, plain ground, with borders of various colours. These are good for form and utility.

A toilet service is also shown, equally well manufactured, but the design of which appeals to the most vulgar taste—hat-boxes and portmanteaux in miniature, produced in porcelain as the furniture of a lady's dressing-table. The taste that could be gratified with such things would doubtless admire horse's-hoof brooches, horse-shoe belt-clasps, and similar rubbish of jewellery, which in the present day unfortunately finds purchasers.

W. T. Standish exhibits a water jug, ornamented with strawberry plants and butterflies well painted, but the handle is most absurdly made of imitation ribbon, bent out into impossible stiffness to enable it to lift the heavy vessel. The vagaries committed in the designs and decoration of these water jugs are curious. One group is to be lifted by a portion of a swan's neck, the body of the bird laid open forming the orifice of the jug; others, as in the present instance, are to be raised by ribbons, while, by way of ornament, fuci are fastened over the surface of another and its corresponding basin. The skilful manufacturers who are dependent upon such designs as these would do well to visit the collection of Indian pottery, and see how the instinct, as it almost seems to be, of the natives guides them in the conception and application of ornament, and saves them from such solecisms as require, one would hope, only to be pointed out to cause them to be shunned.

The Worcester Royal Porcelain Works.

The Worcester Royal Porcelain Works exhibit porcelain, biscuit, or parian, and "ivory china," which is glazed parian. The specimens of their porcelain are generally notable for transparence and homogeneity of paste, and for equality of glaze. In these important points of manufacturing excellence they surpass the much-prized specimens of early Worcester of the last century; but in splendour of coloured decoration, and in general richness of effect, the finer

examples of the early work still remain unequalled. The gros bleu and the scale blue, the pale turquoise and an oriental red that distinguished the old Worcester are not yet matched by the new; but the perfection with which pieces can be turned out at present in all points of manufacturing excellence is greater than was the case at any earlier epoch. The Worcester Royal Porcelain Works.

A few of the more ambitious pieces do not quite justify this praise. The large centrepiece and candelabrum enriched with turquoise and gold is by no means a favourable specimen of design, the shortcomings of which are attempted to be made up for by the application of decoration in the form of knots, ribbons, medallions, etc., wherever a vacant spot is available. The whole piece is wanting in sharpness and finish, besides being considerably twisted in the firing. On the other hand, it is right to point not alone to success of material and manufacture, but also to some instances of the rarer merit of excellent colour. A pair of vases, in case No. 105, have a brilliant yellow ground, aided in effect by the tints of the birds painted on it; and this, one of the difficult colours to deal with in the decoration of porcelain, is very fine in tone and successfully treated.

A pair of small bottles in "ivory porcelain," the exterior being composed of open-work, imitated from Chinese originals, such as was produced at the Sèvres manufactory in the time of Louis Philippe, may be regarded as a *tour de force* in pottery. The success of the present specimens in a paste to which it is difficult to give much rigidity previous to firing, speaks highly for the manipulative dexterity of the artists employed, but it would have been well had the reason for using such an open-work covering to porcelain vessels been borne in mind. The oriental potters produced this ingenious and delicate contrivance in order that a cup or bowl containing hot liquid might be held in the hand without inconvenience. Applied as in the present example to vases, it becomes merely a curiosity; and this is the case also where a teapot is similarly formed, the handle, not the body, being the part to be kept cool. This little teapot is, however, a very pretty specimen, and the best example here of this kind of manufacturing dexterity; it is of perforated ivory porcelain, executed by J. Rowe.

A series of flower-holders are shown in case No. 101, designed by Messrs. Roberts, Webster and others; also of spill cups from designs by Messrs. Bejot, Bott, J. Booth, J. Bradley, J. Hadley, J. Hopwich, and E. Stephen; and jardinières by Bejot and Clarke, one of the flower-holders of a three-lobed outline, to contain three groups of flowers, is very satisfactory in design; another flower-stand, celadon ground, with frieze of Cupids in the style of Fiamingo, is a pretty object, but the glaze somewhat injures the work of the

The Worcester Royal Porcelain Works.

artist. An elephant with howdah, cleverly modelled, shows the excellence of the ivory porcelain; two inkstands of triangular form are good in design, and one with pale sage green ground and white ornaments in Parian, deserves special notice.

Among specimens of very skilful manufacture may be mentioned a tazza with wreaths of flowers in relief. Works of this class attract curious observation on account of the ingenious efforts made to imitate nature in minute detail, and our knowledge of the difficulties that must have been encountered in the attempt; one is disposed to wish that these difficulties had been impossibilities, for such works contain no principle of art, and having been once done, the repetition only proves that what one man has accomplished another can do again. The skill thus wasted might produce desirable results if more artistically trained; and it is to be hoped the day may be coming when "curiosity" alone will not suffice to attract the attention of the public.

Various specimens in form of shells, etc., are shown, often very carefully modelled and in some instances of exquisite delicacy of texture; they are for the most part injured in effect by the restless glitter of the excessive glaze, in many cases poured over every portion of them. A kneeling figure of an angel holding a shell is to be excepted from this criticism, the figure being spared this injury, the shell alone, where glaze is not inappropriate, being highly lustred. A pair of tazzas are ornamented with masks in relief, imitating bronze, sufficiently close copies of a metal decoration which would not be very appropriate in such a position. Round the base of these dishes is a pretty decoration of a row of pearls, on which the brilliant glaze tells with effect. A salt-cellar formed of three shells, somewhat in the style of the old Bow and Plymouth pieces, is excellently modelled. A pair of vases with Medusa head handles, deserve remark for the excellence of their deep yellow ground, sucessfully painted with flowers rich in colour; also a pair with pale turquoise ground, painted with robin, goldfinch, etc.

A considerable collection is shown of vases, ewers, tazzas, etc., in the style of the Limoges painted enamels of the 16th century. The grisaille painting is much preferable to that where colour has been introduced. Some, indeed, are utterly spoilt by the inappropriate introduction of medallion portraits in colour. These, in design, subject, and mode of treatment, are so incongruous in relation to the style of the vases themselves, that it is difficult to believe that the same mind can have brought them together. A pair of vases and a salver and ewer, painted by the late Thomas Bott, with the subject of the Norman Conquest, after Maclise's designs, are the most remarkable specimens of their kind in the

Exhibition. The groups of figures are well drawn and most elaborately and skilfully executed. A pilgrim bottle, beautifully painted, with the subject of Orpheus in Hades, is by the same artist; in these and some other specimens shown in the case, making allowance for occasional opacity in the grisaille, which cannot be got to sink into the ground and blend itself with the dark hue of the latter, as did the colours used on copper by Limousin, Reymond, and other of the Limoges 16th century artists, there is good evidence how successfully both artist and potter have triumphed over the difficulties of the material to be dealt with. It is, perhaps, this natural satisfaction in overcoming an obstacle that so often prompts ceramic workers to imitate too closely forms and styles of decoration that are laborious and difficult to reproduce in porcelain, but which are really fitted, perhaps for metal or for some other material, wholly different from any product of clay. In the case under consideration, many of the specimens seek to reproduce in porcelain the peculiar forms that were deemed appropriate for repoussé metal-work by the artists who orginally designed them, but which are ill-suited to the sharp outline incidental to a hard material. **The Worcester Royal Porcelain Works.**

Various specimens are exhibited of parian of most excellent quality. The statuette of the "Crouching Venus" may be noted as generally well modelled, excepting the hands, and successfully executed. Glazing, which has been too freely employed in some of the figures, is, in this case, more cautiously applied. The statuette, known as "Diana Robing," is also well reproduced. The "ivory porcelain," the beauty of the texture of which is much to be praised, has been already alluded to.

It would be well if our manufacturers would turn their attention to vases for lamps. The French have brought this branch of porcelain manufacture to a high condition of excellence, as would have been seen had they been exhibitors. English-made objects for the same purpose are, as a rule, in the same condition of abasement as most of our branches of manufacture, in which art *ought* to have been present previous to the Exhibition of 1851.

FOREIGN CONTRIBUTIONS.

We now pass to the contributions from various foreign countries. **Denmark**

Bing & Gröndahl, Copenhagen, exhibit a collection of biscuit figures, chiefly after statues, etc., by Thorwaldsen; they are cold, opaque, and chalky in texture; all are low-priced. The only piece remarkable for manufacture, is the figure of Hebe, after Thorwaldsen—a large statuette nearly four feet high. In case No. 92,

Denmark.

exhibited by the Royal Manufactory, are portions of dinner and dessert services in the manner of old Dresden; the flower-painting in these deserves special mention for its excellence; the style is well preserved, and the execution is equal to the originals of the 18th century. The porcelain, it should be observed, is excellent in texture, but somewhat too coldly white for its decoration. Cups and saucers, in case 70, by Bing and Gröndahl, with a pale blue pattern, very delicate in colour, the design a good deal in the manner of Chantilly, are much to be commended.

In the same case are some coloured biscuit figures sustaining tazzas; these are indifferently executed, and are in the extreme of bad taste. Nothing but artistic knowledge and discretion of a high order can redeem the "natural" colouring of semi-nude figures from becoming conspicuously offensive; and, indeed, it may almost be said that there is no instance of the successful application of colour to this purpose—at least in the case of porcelain or parian. Among reproductions of old Dresden pieces most skilfully executed must be noticed a dinner service, much enriched by gilding. It is exhibited as an exact copy of the 18th century models. The style is not a satisfactory specimen of Meissen art, and it can only be said that it would have been better had so much skill of manufacture been bestowed on more worthy objects.

Sweden: Gustafsbergs Company and Röstrands Company.

Porcelain and parian are exhibited by Sweden, the latter differing in quality from the parian exhibited by British manufacturers, wanting the ivory-like appearance which their material possesses, and, on the other hand, being free from the opacity of the biscuit exhibited from Copenhagen. The best figure is that of a Neapolitan Fisher Boy (*Gustafsbergs Co.*) seated, in which the difficulties arising from the joining the various portions together, and the reduction in size of the mass in firing, have been successfully guarded against. A vase (*Röstrands Co.*) decorated with flowers in full relief, shown in the same case, is a *tour de force* in pottery, too fragile to bear handling, but a curiosity of modelling and laborious manufacture. The handles of this vase, it may be noted, are far too slender for its bulk.

The figure groups round the vase of the fountain with expanded lip of an ungraceful form, exhibited by the Gustafsbergs Company, are modelled from designs by Professor Molin, and represent six subjects from Scandinavian mythology.

The statuette of Charles XII., exhibited by R. A. Ralag, in a strained and rigid posture, is the work of the same artist. The Card Stand (*Gustafsbergs Co.*), with reliefs representing Odin and the Gods seated in Valhalla, the figure of Iduna in the centre, holding the apples which secured immortality, is after the design of M. Ericsson; the decoration of a large oviform vase—viz., in

bouquets of well-painted flowers—is spoilt by the introduction of shadows beneath the flowers. This is an illustration—the endeavour to attract attention by eccentricity rather than by excellence—of which the Exhibition still affords not a few, of the want of perception on the part of decorators of some of the sufficiently obvious, the almost elementary, principles of their art. A very large vase in the centre of the gallery (*Gustafsbergs Co.*), measuring upwards of four feet in height, may be mentioned as a specimen of skilful manufacture. It has a chocolate ground, high scroll handles, much gilt and painted, and round the body a frieze of figure-groups, representing, under the flags of the provinces of national costume of Sweden, the various industries of the country, but it is neither commendable for colour nor decoration.

Sweden: Gustafsbergs Company and Rostrands Company.

There are also from Sweden objects modelled after Meissen forms, but in the commonest materials and coloured in the rudest manner. If the aim is cheapness, surely it would be possible to select pieces in a style which does not depend wholly upon excellence of manufacture and decoration for its merit.

Prussia: Berlin Royal Porcelain Manufactory.

The most remarkable specimen shown in this department, and, in some respects, in the whole Exhibition, is an oval cistern of white unglazed porcelain, or biscuit, of large size, being about four feet long and two feet deep. It is modelled by F. Mantel & Fack, and is decorated with dolphin masks supported by sea nymphs, the whole being well designed in a bold, effective style, and admirably executed. There is a vigour about the work which renders it very remarkable, and in the highest degree satisfactory. As an example of successful manufacture of a piece of uncommon dimensions, it is also deserving of high commendation. The stand of this vase or cistern is of carved black wood, and though very good in design, appears too slender for the weight it has to bear. A bust, small life-size, of the Imperial Prince of Prussia, modelled by F. Mantel, is excellent, as is also another of Prince Bismarck, by the same artist. The group in biscuit, after Charles Rauch, of Aaron and Hur supporting the hands of Moses on the Mount during the battle of Israel with the Amalekites, is also deserving of mention as successfully copied.* It is modelled by J. Janda. The ewer, much over-elaborated in the style of metal-work of the 16th century, is from the design of F. Mantel; upon it is a clever medallion portrait of Queen Augusta. A very large vase of white ware, placed in the centre of the gallery, with bronze handles and bronze tripod stand, should rather be quoted as a specimen of metal work than of pottery, the vase being only notable for size. A suite of five vases and covers, copies

* It is interesting to compare the treatment of this subject by the sculptor with that of our distinguished painter in the Exhibition of the Royal Academy.—ED.

Prussia: Berlin Royal Porcelain Manufactory.

of 18th century models, are shown in case No. 73: white ground with bands of scale pink round the neck, and on the centre and lid bouquets of flowers; flower-painting bold and good in colour; paste also even and well manufactured; the tone of the rose-coloured band is somewhat crude. Two caddies of old Dresden character, with figure groups in the style of Lancret, in pink, are successful imitations, as far as general form and effect go, of pieces much prized by collectors; the spirit and piquant life which the 18th century artist knew how to throw into his work have disappeared in the hands of the copyist. The large vases, decorated with flowers, exhibited by the Royal Berlin Porcelain Manufactory, are important looking pieces, but by no means examples of good taste in design; the handles of these are in gilt metal, well cast, but bristling with prominences, not only never meant to be, but impossible to be, handled. In the same case is a suite of four painted in the tone and style of faïence; the centre vases, about three feet high, are very remarkable as examples of successful potting, but not otherwise to be commended. A pair of tall vases, bleu de Roi, are shown, but crude in colour, and wanting in just proportion between the body of the vase, and its base and lip. The Prussian gilding is in general overdone both in quantity and tone.

Hungary.

Moritz Fischer, of Farkashaza, exhibits chiefly reproductions in the style of various manufactories of the latter half of the last century. The most successful of these, and in fact the most remarkable reproductions in porcelain shown by any exhibitor, are two plates in the style of old Dresden, with embossed edges, and painted with bouquets of flowers in the exact fashion of their models. The paste is as good as the old—a little colder, perhaps, in tone. The painting, especially of the small flower sprays, is as faithful to the colour and design of the work of the Meissen artists as it is possible to be. We observe with gratification that Fischer's reproductions are clearly marked and also stamped with the name of the place where made; it would be well if such a precaution were taken in our own country by manufacturers using the moulds of the 18th century, whose reproductions are constantly palmed off upon inexperienced purchasers as genuine old pieces; they might easily be dated, and this trade in deceit extinguished. The plates in the Chinese style, although very good, do not attain to the excellence of the originals, whence doubtless they have been derived. The colours are wanting in the transparency which is so effective a characteristic of decoration of China and Japan. A plate with a yellow ground is, however, an exception, and deserves special commenda-

tion. The effort to reproduce the Sèvres of the time of Marie Antoinette, is merely another instance of the unsuitability of hard porcelain as a medium for the style and touch which tell so well upon soft. The failure in this case is not worse than in others, but it is inevitable in all.

Oriental porcelain.

The chief contributors in this division are H.M. Commissioners of the Exhibition of 1851, Messrs. Hewett, and Lady Alcock. Among their contributions should be noticed a pair of small Japanese bowls, red ground, with medallions of blue ornament on white, the red excellent in tone, equal to some of the old Oriental, and surpassing any colour of the same nature produced in Europe. This harmonious red has long characterised Oriental decoration, and was imitated with some success at Chelsea, Bow, and Worcester on soft porcelain, and also at Dresden on hard paste, in the last century. Efforts to reproduce it on specimens shown in the present collection, though much to be commended, are not yet wholly successful.

Pair of bottles, mottled greenish blue ground, not successful, having an opaque effect, happily unusual in Oriental colour. The highly burnished gilding seems a suggestion, and a bad one, taken from some European model. The subdued gold of the old Japanese work was far superior as an adjunct to porcelain decoration. It had, however, the defect of our own oil gilding, a want of durability.

Teapot of square form, decorated with groups of flowers on the sides, which are deserving of notice for the remarkable skill with which they are executed, in what is commonly known as enamel-painting. Their key of colour is low, rather like the Satsuma earthenware, the secondary and tertiary colours predominating, but their style of treatment and painting is perhaps as fit as any for the decoration of porcelain of very hard body. As examples of skill in pottery, may be quoted two small perforated stands, moulded with great precision and fired with complete success; the colour of one of these, a good yellow, is also to be commended. The glaze has a little of that glitter which is not a merit, though it seems pursued by some of our manufacturers as though it were the one thing needful in their art. Various large specimens of vases, etc., are also exhibited of Oriental fabrication. They are, without exception, wholly inferior to the ancient examples of similar character, which they obviously are intended to rival; it is only necessary to specify a pair of deep red, tall vases (No. 4597); the colour is dull and shallow. These, it should be observed, and all vases of similar character, are not composed of a true porcelain, but are an opaque stoneware thickly covered with a rich glaze that often flows down like honey, and in which is mixed the colouring matter. The various splashed crackle vases are of this nature.

Oriental porcelain

Lady Alcock exhibits specimens of Oriental porcelain. Among them may be noted a purple splashed vase of very rich colour. The shape, a frequent one among Chinese potters, is ungraceful. Another vase of fine red, imperfect in the lip, is rich in tone. Both these are stoneware rather than porcelain.

A celadon oviform vase, with embossed leaf and flower pattern, is worthy of notice for style and treatment.

Two very large Japanese vases are shown, bizarre in form, but painted in a singularly bold and effective manner, with conventional flower ornament in blue; upon this are introduced medallions of painting in the style of lacquer-work; the effect of the latter is more singular than satisfactory.

The flower vases of deep blue ground, with raised white ornament, are bold in design, and good pieces of decoration—very suggestive as specimens of the conventional treatment of natural forms, well fitted for their place and purpose.

Conclusion.

In conclusion, it is a satisfaction to be able to remark upon the general excellence and importance of the exhibition of porcelain. The European nations exhibiting have all advanced more or less since last their products were able to be critically examined side by side, bearing in mind that France is, unfortunately, not included in this competition. Great Britain, especially, owing to the energy of some great manufacturers, is well represented on the present occasion. There cannot be a second opinion about the excellence of quality of the porcelain shown—its fine and homogeneous texture, the skill with which it is fired, and the perfection of the glaze. It is but just to point out how far in advance, in some respects, of most of the work of the 18th century are the English specimens here exhibited; the crazing of the glaze—want of uniform adherence to the body—frequent in old Bow and Chelsea; the injury of the surface from imperfection in the saggars; and the inequality of the paste observable in old Bristol—these faults have been avoided; but, on the other hand, the rich and decorative colours, special characteristics of the older manufactories, are not often produced. Science has been doing her work, and the results are important and valuable; but science alone will never raise a nation's manufactures to the highest standard. If manufactures are to be produced having other and higher qualities than those they derive from science, an impulse in a more speculative direction must be given to thought. Imaginative power must be cultivated —that creative faculty which can alone give originality to the work of man's hand—and it is in this power that the English artist-workmen of the present day are conspicuously deficient. There is no royal road to its attainment, for though it would be needless to

remark that the gift of imagination cannot be bestowed by any education, the latent germ, should it exist, may be stimulated, and an effective and practical direction given to its development. Surely the intellectual soil of this country is still capable, as in former days, of producing vigorous shoots; but unless art, and whatever artistic tendencies a nation may possess, are fostered with a care at least equal to that bestowed on scientific culture, the objects that surround daily life may be, scientifically and mechanically, almost perfect, but wanting in everything calculated to raise men's thoughts above the hard fact of practical utility. And it is right that our manufacturers should ponder this well. The general diffusion of education creates a demand for work of higher quality than has hitherto been sufficient. Germany as well as France is girding up her loins previous to entering the arena. The world's supply of manufactured articles is the prize to be contended for; once lost, the vantage-ground of prestige would be hard to regain. British manufacturers possess it now; if they would keep it, no pains must be spared, no means be left untried, or the demand for their productions will cease, and the uttermost parts of the earth where their supremacy is still admitted, will know them no more. Conclusion

Alphabetical List of Exhibitors of Parian or Porcelain.

ADAMS & CO.
ALCOCK, LADY.
BAILEY, JOHN.
BARLOW, THOS.
BATTAM & SON.
BERLIN, ROYAL MANUFACTORY.
BING & GRÖNDAHL.
BOUCHER, GUY & CO.
BROOKER, MRS.
BROWN, LEWIS.
BROWNFIELD & SON.
CERAMIC AND CRYSTAL PALACE ART UNION.
COMMISSIONERS FOR EXHIBITION OF 1851.
COPELAND & SONS.
COPENHAGEN, ROYAL MANUFACTORY
COX, G. J.
DANIELL, MESSRS.
DANIELL, R. P.
DRESSER, DR.
FISCHER, MORITZ.
GARDNER & SONS.
GOODE & CO.
GROVE & STARK.
GUSTAFSBERGS COMPANY.
HEWETT & CO.
IPSENS, MRS. P.
JONES, GEORGE.
JOSEPH & CO.
KERR & SONS.
KERRIDGE.
MACKENZIE, S. A. MUIR.
MCBIRNEY, D. & CO.
MINTON & CO.
MORTLOCK.
PELLATT & CO.
PHILLIPS & PEARCE.
POWELL & BISHOP.
PRICE, DR.
RALAG, R. A.
RÖSTRANDS COMPANY.
ROSE & CO.
SCHMIDT, CARL.
SOANE & SMITH.
SIMPSON.
STANDISH, W. T.
TUPPER, M.
WESTHEAD.
WORCESTER, R. PORCELAIN WORKS.

Alphabetical List of Artists who have Designed or Decorated Specimens of Parian or Porcelain Exhibited.

ALLEN, Painting after Boucher.
BAUER, W.
BATES, D.
BEJOT, E., Spill Vases, etc.
BELLEUSE, M. C., Bust.
BOTT, THOS., Vases, etc., style of Limoges Enamel.
BOOTH, J., Spill Vases.
BRADLEY, J., Spill Vases.
BROCK, T., Statuette.
CLARKE, Jardinières.
COOKE, W., Painted Cups and Saucers.
COX, G. J., Painted Plates.
DANIELL, R. P., Views of "Mentmore," etc.
DAVIES, Centre-piece, Tazza.
DEININGEN.
DRAKE, F., Reliefs after design by.
DRESSER, DR., Vases.
EHRHARDT, L., Painted Plaques.
ERICSSON, Tazza.
FULLER, F., Statuette.
FACK, Cistern.
FAUCANVER, F.
GÖRNER, Vases, Painted.
GOODE, W. J., Painting and Etching on Plates, etc.
GREEN, AARON, Vase.
HANCOCK, Statuette, coloured.
HADLEY, J., Spill Vases, Inkstand, etc.
HOCKERT, Figures after design by.
HOHLE, H., Painted Plaque.
HOPWICH, J., Spill Vases.
HURTEN, C. F., Painted Birds, etc.
ITZENPLITZ, Statuette,
JANDA, J., Statuette.
KUHN, Vases, painted.
LEES, G. R., Dessert Services.
LEUZINGER, Mdme. A., Painted Porcelain.
LOOCHEN, Vases, painted.
LUCKHARDT, C., Painted Plaques.
MALEMPRE, S. A., Statuette.
MANTEL, F., Cistern, Busts.
MEINEDT, C.
MILLER, G. M.
MILLES, *see Solon*.
MITCHELL, Dessert Service, painted.
MOLIN, Statuette and Fountain.
MUSSILL, M., Flowers.
NUNN, W. J.
PALMERE, C., Views of "Mentmore."
PIENNE, Statuettes.
PILSBURY, Flowers.
PROTAT, H., Chinese Ornaments, etc.
RANDELL, J., Ewers and Basins, painted.
RAMFORD, Centre-piece.
REIDEL.
RISCHGITZ, E., Painted Porcelain.
RUSHTON, J., Painting; Archangel Gabriel.
ROBERTS, Flower-holders.
ROWE, J., Pierced Work, Views of "Mentmore."
SCHMIDT, C., Painted Plaques.
SLATER, J., Vase with Birds, etc.
SOLON, *pâte-sur-pâte*.
STEIN.
STEPHEN, E., Spill Vases.
STEEL, MR. AND MRS., Dessert Centre-pieces.
SIMPSON, Painted Plaques.
TAYLOR, CH. B., Portrait.
TUPPER, M., Cups, Plates, etc.
WILMORE, Statuette.
WILLIAMS, J., Landscape on Vase, Tazza.
WEBSTER, Flower-holders.
WALGER, Bust of Count Moltke.
WHITTY, J. S.
WOOD, J. H. G., Milk-jugs and Déjeûners.
YAHN, Painted Vases.

REPORT ON MISCELLANEOUS POTTERY

In the International Exhibition of 1871.

By LEON ARNOUX, Esq.

(*Art Director and Superintendent of Messrs. Minton & Co.'s Manufactory.*)

It is the fourth time since the year 1851 that I have been called upon to report on the ceramic manufacture in International Exhibitions. In accepting the task, I knew then I could hardly satisfy myself, do justice to its numerous exhibitors, or discuss thoroughly, in the compass of few pages, the merits or demerits of a class which includes products of an almost endless variety. On the present occasion, however, my work will be considerably lighter, in consequence of the co-operation of several members of the Jury, who have undertaken to report on the special sections of this class; and shorter, also, in consequence of the absence of any display on the part of the French, who, at the time at which this Report was written, had not unpacked any of their goods. A comparison, therefore, either in respect to similarity or difference between the state of the manufacture in England and in France, has thus been rendered impossible. Such being the case, I will confine myself to a miscellaneous review, insisting specially upon the new processes and scientific results illustrated by the specimens exhibited, it being well understood that those who seek for detailed critiques on the china, the earthenware, and other goods, will find them, under their several heads, in proper divisions of these Reports.

As it is also the wish of Her Majesty's Commissioners that these documents should be useful in an educational point of view, I will describe summarily, in each instance, the general principles on which each particular class is founded, to help the understanding of those unacquainted with ceramic processes.

Although four years only have elapsed since the last International Exhibition took place in Paris, a time comparatively short for allowing essential modifications of the old processes, or the introduction of many new inventions, our readers will not be altogether disappointed in finding that during that short space there has been as much, and perhaps more, advance made than at any other period

since 1851—the year that we consider as opening an era of decided progress for the English and foreign pottery.

Improvements in manufactories.

By way of introduction to our subject, let us say that, although the Machinery Department, and the shed devoted to pottery, do not include a great display of new appliances, many improvements have taken place in the general arrangement of our manufactories; several new establishments have been built upon improved principles, attention being chiefly given to a better ventilation, to the driving of lathes and jiggers by machinery, the heating and the drying of the ware by steam pipes, doing away with the dry stoves, from the exhausting effects of which the young population of North Staffordshire suffered so severely. The same mode of heating by steam has been applied to the printers' presses, and more extension has been given to the system of preparing the clay by the patent process of Messrs. Needham & Kite. All these are improvements, to which the passing of the Factory Act has contributed, whatever might have been the dissatisfaction to which it gave rise when it was first enforced. The consumption of coals has been reduced very materially, with a corresponding reduction in the emission of smoke, although the quantity of ware produced has constantly increased. The barbarous and wasteful mode of firing, in use till these last few years, has been altered in ovens, kilns, and slip-houses, by the adoption of a more rational and scientific way of burning the fuel, by which sometimes no less than thirty-three per cent. of its weight is saved.

Altogether, our establishments are cleaner, better lighted, more healthy, and conducted on more economical principles—a very satisfactory state of things when combined with corresponding improvement in the quality, and better taste in the decoration of the manufactured articles.

Wedgwood's jasper-ware.

As jasper-ware, parian, and hard porcelain biscuit do not strictly come within the limits assigned to the other reporters on pottery, I will begin my review by these goods, which make a large display owing to the leniency of the jurors in allowing the exhibition of a great number of pieces already under our notice on similar occasions. The pottery called jasper was invented by the celebrated Josiah Wedgwood, and from his time down to the present, its production has been a speciality in his family, his great-grandchildren being the present proprietors, and constituting the firm.

Considering the state of the Staffordshire manufacture previous to the coming of our great potter, the creation of an article so unlike anything that had been done before, and so rapidly brought to such a degree of perfection, was really wonderful—unparalleled perhaps in the history of the potters' art.

Wedgwood's jasper-ware.

For those who desire to enter deeply into the history and all the details of this kind of ware in the time of the great Wedgwood, I cannot do better than refer them to the book published by Miss Meteyard. I will only say that jasper is a vitrified stoneware, of superior quality, the principal components of which are a plastic clay, mixed with an additional quantity of sand or flint, and vitrifying elements, such as felspar, Cornish stone, ground glass, carbonates, and sulphates of lime and barytes. The principal merit of a good mixture, besides its vitrified texture, consists in increasing the beauty of the tints produced by the metallic oxides used as colouring substances. Jasper may, then, be white or coloured. Generally, the body is white, coated over with a coloured mixture of the same nature, the ornamentation consisting of white figures laid on the coloured surface. At the time of Wedgwood, the nearest approach to a vitrified body was the common stoneware, glazed by means of salt, from the knowledge of which he could derive very little information. It was not then a trifling difficulty to find a mixture sufficiently plastic to be worked easily, which would keep the shape of the vessels without blistering or sinking when submitted to the strong heat of a biscuit oven, and susceptible at the same time of producing good colours when mixed with the staining materials. He succeeded so well, that not only could he produce vessels of the most elegant form, but their fine textures, and the neatness of their execution, have never been surpassed.

To the credit of the present proprietors we must state that these qualities are prominently displayed in the majority of the articles they have sent. Their display is very numerous, for in a single room (No. 13) there are no less than five cases entirely filled with jasper vases and ornaments. We have particularly noticed in the Fine Art Gallery two round slabs with blue ground, about sixteen inches in diameter (Nos. 125 and 126), which are probably amongst the largest pieces produced of this material; also the rectangular plaque, representing Diana, shown on a ground of a very delicate dove colour. In one of the rooms a déjeûner set, with circular tray of a light olive colour, is worth noticing, as reproducing one of the most perfect patterns of the originator. The decoration consists of rams' heads, placed alternately, with festoons of fruit, in the concavity of which, like intaglios, stand small oval medallions, on a dove-colour ground; two neat borders above and below complete this chaste decoration. However, the most conspicuous piece of Messrs. Wedgwood's jasper is placed in the centre of one of the Fine Art Galleries, and is exhibited by Messrs. Phillips & Pearce, this last-named gentleman being the designer. It is a plateau or centre-piece for a dinner-table. Its elongated form is defined by a succession of small troughs,

Wedgwood's jasper-ware.

ornamented outside with a frieze of Cupids. The length of this outer frame is relieved by small vases and tazzas on pedestals. On the centre part, covered with a piece of plate-glass, stands a five-light candelabrum with two large tazzas at each end; outside the plateau two other three-light candelabra are placed. The whole is in the style of the second part of the last century, and the colour is light blue, with white ornaments. The flowers arranged in the troughs, reflected by the plate-glass, give to the whole a very lively appearance.

Parian or statuary biscuit ware.

The production of the material called parian, or statuary biscuit, introduced in North Staffordshire, not more than twenty-six years ago, by the exertions of Messrs. Copeland, Minton and Mountford, has since greatly developed, no doubt on account of the simplicity of the principles on which its preparation is founded, and the small capital it requires at the outset. This body corresponds to the hard porcelain biscuit made by the Germans and other continental nations, the best types of which are the Sèvres biscuit groups, which for finish and perfect execution have never been surpassed. The mixture is about the same in all countries, and requires only granitic materials—that is, the clay extracted from a decomposed pegmatite or felspar, which is called kaolin on the continent, and Cornish clay in England; and the undecomposed felspar, generally supplied from Sweden or America, which, containing a good amount of soda or potash, acts as a flux on the former. In Germany and France, where good fire-clays are more abundant than in England, very little felspar is used—an intense heat producing the desired effect. Here, on the contrary, the absence of a good fire-clay compels us to have the goods fired at a much lower temperature; consequently more felspar is used. Of course, parian may be made in many other ways, but for our explanation we select the simplest type. After the materials have been finely ground and mixed, the figures are cast in plaster moulds, in separate pieces, which will have to be put together by experienced workmen. A striking difference of colour is to be noticed when the English and foreign statuary biscuits are placed side by side; the English have a yellowish tint, particularly pleasing; the foreign a bluish white colour. From this contrast it might be inferred that in one of them some colouring material had been introduced, whereas the difference is entirely owing to the process of firing. In the French and German ovens great care is taken that no air should be admitted, except that which is strictly necessary to effect the combustion of the fuel; consequently the ware is fired in a reducing atmosphere with an excess of oxide of carbon, the small quantity of iron existing in the clays, combin-

Parian or statuary biscuit ware.

ing, under the influence of the heat, with the silicic acid, forms a silicate of protoxide of iron, which, like all the salts of protoxide of this metal, has a bluish or greenish colour. In the English parian ovens, air is abundantly introduced, the ware is fired in contact with an excess of carbonic acid, and as iron oxidises when heated in this gas, the result is the formation of a silicate of peroxide of iron of a reddish-brown colour. It is this salt which, spread in small quantity in the mass of the biscuit, produces the pleasing creamy colour already mentioned. This being understood, one will not be surprised at the many and unsuccessful attempts made on the continent to produce a biscuit similar to ours, without altering the construction of their ovens. To-day, however, parian like ours in every respect is manufactured in France, Germany, and also in Sweden, by the Gustafsbergs Company. This Company uses the clay from Cornwall, and the appearance of their groups or figures is quite satisfactory. Messrs. Copeland, who have given a great deal of attention to their statuary biscuit, continue to exhibit a number of figures, neatly made, and generally from elegant models. But, since the number of the manufacturers of these goods has greatly increased in England, parian, from the competition so created, has become a comparatively cheap article in our market.

Prussian and Danish biscuit ware in Exhibition.

The Royal Manufactory of Berlin exhibits the largest piece of porcelain biscuit, in the shape of an oval jardinière, about four feet in diameter, the sides being boldly ornamented with mermen and mermaids placed on each side of a dolphin's head. The execution is perfect, and the borders being only partially glazed, give an additional finish to this remarkable production. There is also a good portrait of the Crown Prince of Prussia, and a group of three figures representing Aaron and Hur bearing up the hands of Moses.

The manufactory of Copenhagen has a great many figures of the white biscuit, several of which we had seen before. All of them are well executed.

Glaze applied to parian ware.

Messrs. Minton, and the proprietors of the Porcelain Works of Worcester, in order to obviate the difficulty of cleaning parian when soiled, have found the advisability of glazing it, and this we think an improvement when it is applied to the decoration of our tables in the shape of comports, baskets, or centre-pieces. Amongst many other specimens, the Worcester compartment shows in glazed parian a small perforated teapot with pale blue lining, exquisitely executed, which will bear comparison with any of the modern works of Sèvres.

Iridescent glaze used at Belleek and Worcester manufactories.

It is not unlikely that the reader has noticed, in the course of the last few years, large quantities of glazed parian covered all over with a bright lustre, possessing the various iridescent hues peculiar to mother-of-pearl. This process of imparting an additional brilliancy to the glaze, which was first introduced in England in Wedgwood's time, has been and is still used for the production of large quantities of purple or silver lustred ware, which constitutes one of the cheapest articles of the Staffordshire trade; but beyond this there has been no improvement in this process since its first introduction until it was taken up by a Frenchman, M. Brianchon, who has invented lustres of many different tints with increased brilliancy. Since the Moors, and the celebrated Maestro Georgio Andreoli, who were the first inventors of this mode of decoration—more striking than really artistic—the principles on which it is constituted are the same. They consist in heating metallic substances, easily reducible, in contact with an excess of carbon. At the time when chemical knowledge was very limited, the great secret was chiefly in the construction of the kiln, built in such a manner that large quantities of smoke were produced during the time of firing. M. Brianchon produced the desired effect on the hard porcelain by a mixture in which the chloride of gold or metallic nitrates, such as those of bismuth, iron, uranium, nickel, or cobalt, supply the metallic element, while resin, with essential oils of lavender or turpentine, supply the reducing or carburetted material. This mixture, which requires an experienced manipulator, being ready, it is thinly laid on the surface of the ware and dried, when it has the appearance of a light brown varnish. It is only after firing it at a low heat that it comes out with all its brilliant reflects. The Royal Porcelain Works of Worcester, Messrs. Kerr, and the Belleek Company in Ireland, have produced the largest quantity of goods of that class. We think that the best specimen exhibited belongs to Messrs. Phillips & Pearce. It has the elongated form of a flower-holder, made from several shells, with a small figure standing on bulrushes in the middle.

Celadon porcelain: the "pâte-sur-pâte" process.

The Exhibition contains a good selection of glazed parian ornaments in celadon and white. This pottery had a great success in Paris in 1867, when produced for the first time by Messrs. Minton. It has also been adopted by the Worcester Manufactory. The combination of the celadon and white parian is very quiet and chaste in effect, and harmonises easily with surrounding objects. It is then often preferred by people of taste, or those who are afraid of making mistakes in the selection of colours. Celadon porcelain was a favourite with the Chinese, who, many hundreds of years ago, made with this material articles of great beauty.

Amateurs have not failed to notice that particular class of celadon pieces, ornamented with white relief, on which the potter has traced with a pointed instrument a few fine lines, with a view of introducing some details in the white parts of his design. The process used by the Chinese for the making of these vases was rather a puzzle for us; and it is only twenty-four years ago that the Sèvres works, then under the management of Mr. Ebelmen, attempted their reproduction. Although the process used since at Sèvres cannot be said to be exactly the same as the Chinese, the success was such, however, as to induce special attention. The new process was called "*pâte-sur-pâte*"—not a very elegant name, by-the-bye, for which we ought to find a substitute, but which has, at all events, the merit of describing pretty well this mode of manufacture. The process is simple enough. A vessel is made first with the clay coloured in celadon, and when it is thoroughly dry the artist, with the aid of a brush, paints the decoration he has decided upon. The material used is the same as the body of the vase, but without stain, and rendered translucid when submitted to the strong heat necessary to vitrify porcelain. The Chinese, who never use the process for very elaborate decoration, increase the transparency by the admixture of an additional quantity of felspar; at Sèvres it is not so. When the piece has been fired, the effect is very similar to that presented by cameos. The transparency of the ornament will allow the colour which belongs to the vase to be seen through it; the thin parts of the relief will produce the shadows, while, on the contrary, those on which the artist has accumulated the white clay will give the intermediate and the high lights. The Sèvres pieces made in this way are the very best in an artistic point of view; the great majority of them are celadon, or of a light-coloured ground of great delicacy, sometimes, however, deficient in effect.

Celadon porcelain: the "pâte-sur-pâte" process.

Until within the last few months this *pâte-sur-pâte* porcelain had never been tried in England. Our processes are very different from those used at Sèvres; besides, it was absolutely necessary to have the assistance of a competent person, who should be at once a designer and a modeller. The late war and the siege of Paris having dispersed the artists attached to the Sèvres works, Messrs. Minton did not hesitate to secure the co-operation of M. Solon, the most talented of them, and they began, in the course of the last autumn, a series of experiments, the result of which is shown by several pairs of vases now in the Porcelain Gallery. In the case particularly devoted to these pieces the public may ascertain, by the inspection of about two dozen of small examples, that Messrs. Minton do not only possess already the

Introduction of this process into England.

Introduction of this process into England.

equivalent of all the Sèvres colours, but several others which will add greatly to the richness of their effect. This will be seen conspicuously by their masterpiece, in the form of a Greek vase, whose body is of an intense black colour, relieved towards the top and lower part by differently-tinted ornaments; the subject represents two Greek figures—a girl on one side, a youth on the other—both trying to break through a circle of flying Cupids by which they are surrounded. The form of the vase, the colours used, and the selection of the subject, work well together, and we think it quite a success as a production of ceramic art. Next to this vase, although not so important, is an oval jardinière in celadon, decorated in front with a panel in which M. Solon has painted one of those ingenious subjects in which he is known to excel: a girl is caught by two Cupids in a net she has just completed.

A peculiar production, from which the Sèvres works have derived great credit, is the "*pâte changeante*," an invention of M. Regnault, the present director. The body of these vases, which in the daylight have the appearance of a greyish celadon, turns out by candle-light to be of a decided pink. Messrs. Minton have effected something similar on a pair of small bottles, decorated with Cupids dancing on the rope. The body changes from a neutral dove colour to a light crimson, according to the quality of light to which it is exposed.

As it happens sometimes with those manufacturers who are always on the look-out for new things, these trials of *pâte-sur-pâte* have induced Messrs. Minton to apply some of these new colours to a cheaper class of ornaments; these will be recognised by the quaintness and originality of their shapes, which have been modelled from antique Chinese bronzes. It is by the introduction of one of those deeply-coloured grounds in the middle part of an antique cyppus vase of great beauty, executed in celadon, that the effect of the arabesque and the general distribution of the ornament has been considerably improved.

Glazed hard porcelain from the continent.

In glazed hard porcelain there is, indeed, very little to be noticed, at least at the time at which our inspection took place. In the case belonging to the Royal Manufactory at Berlin are some vases, with figures of a dull and ineffective colouring, not unlike some imitations of majolica that we have seen at previous Exhibitions. Those in white, painted with flowers, are better, although injured by a too close neighbourhood with those of Messrs. Copeland, painted by M. Hurten. The best are in blue and gold, with a decoration in white enamel. If, however, the Germans do not excel in the painting of their vases, they have many good slabs by Herr Carl Schmidt, the proprietor of the Bamberg

Academy. The best of them is to be found in the Fine Art Gallery. It represents Judith, after the painting by Riedel; this painting is very well executed, and, although the colours are not incorporated in the glaze—an impossibility in the hard porcelain—they are, however, sufficiently bright. Very good specimens of hard porcelain are exhibited by an Hungarian firm; some of them, in imitation of the old Dresden porcelain, are remarkably successful; some others, copied from the Chinese, are extremely clever, not only for the quality of the ware, but also for the way the decoration is carried out; the white enamel is very opaque, and the transparent colours, such as the greens, do not give any signs of crazing or chipping.

Glazed hard porcelain from the continent.

As to real Chinese or Japanese porcelain, there is nothing exceptional. We have only found in the Fine Art Gallery, on the shelves of a piece of satin-wood furniture exhibited by Messrs. Collinson & Lock, a set of four plates, exquisitely decorated with swimming ducks in the centre, and a radiated outer border of pink and red lotus, touched with great spirit. Their quiet green harmony is really delightful.

Oriental porcelain: exceptional specimens.

In Room No. XIII. there is a piece to which we will call attention; it is a flower-pot, flanged at the top, decorated with broad diagonal bands of blue, alternately with narrower bands of white. On the blue the artist has placed some white storks, strongly embossed, and flying over the waves; on the narrow bands he has painted the traditional Chinese dragon in flat blue. Not very striking at first sight, this piece will help to indicate the great superiority of the Chinese potters. When we know that they do not use plaster moulds, but clay moulds dried in the sun, we cannot too much admire the sharpness of the embossments; added to which, the general arrangement, and the opposition of the embossed and painted parts, prove that this potter was a consummate artist. Perhaps if we were to say that a piece like this was entirely moulded, painted, and glazed in the clay state, one single firing being enough to perfect it, our Staffordshire potters would be astonished.

It is not unlikely that the public will have an opportunity of admiring many of the productions of the Sèvres manufactory; but, as we have said at first, they were not unpacked at the time appointed for the completion of our Report, and we have been deprived of the pleasure of examining them.

Specimens from France.

In England hard porcelain is not manufactured. Twenty years ago Messrs. Minton tried to introduce it in this country, but,

English porcelain: its composition.

English porcelain: its composition.

besides the difficulty they experienced in finding a fire-clay which could stand the strong heat necessary for that kind of ware, the absence of a set of workmen trained to processes so different from ours, induced them to abandon their design.

We have, consequently, in England, but one sort of porcelain that we call "china," and which differs from the hard in one essential feature: that is, the mixture of calcined bones in the body. The effect of this addition is to allow the porcelain to be fired at a much lower heat, to harden it, to assist in maintaining the shapes when firing, and lastly, to secure a white transparency. The bones, being chiefly composed of phosphate of lime, which is not fusible, nor decomposed by any of the silicates with which it is in contact, does not combine, and forms what we might call the frame-work or skeleton of the vessels. Although it resists to a high degree the action of the fire, this phosphate is slightly transparent; a great deal more so when diluted in a fusible mixture, like that in which Cornish clay-stone, and felspar are introduced. A comparative trial of the mixture, made with and without bones, will prove the whitening influence of the phosphate of lime.

In the capacity of whitening material this phosphate is of great service to our potters, for, without it, we should be compelled to make our porcelain on the principle of the old Sèvres, or the Chelsea—a difficult and expensive process. The use of this phosphate is then the great characteristic of our English china. To the advantages described above there is anotherr to be added, and not the least; it allows the use of a soft vitreous glaze, similar, in some respects, to the old Sèvres, in which the vitrification is promoted by the introduction of borax, oxides of lead, and other chemical substances. This glaze is sufficiently soft to act as a flux on the colours which are used for painting on its surface, and sometimes will incorporate them in such a manner that they will seem to be painted *under* instead of *over* it. This gives to the painting a more finished appearance, and it is this quality which renders the old Sèvres china so valuable at the present time. With these features in our china manufacture we ought to be satisfied; the more so, since its processes are entirely our own, and that, having to compete with our continental neighbours, we can do so with a material quite as fine as theirs, and better fitted for artistic purposes. Indeed, it is no mean advantage, when we have to colour the ground of our china, to be able to use such colours as the turquoise blue, or the Rose du Barry, and others interdicted on the hard porcelain.

An instructive experiment for those who are not initiated in the characteristics of the soft, or English porcelain, and the hard, would be to examine by candle-light a collection in which both

English porcelain: its composition.

should be fairly represented, and it will be seen at once that when almost all the ground-laid colours of the hard will look duller and more neutral, those on the soft will look even brighter than by daylight—strikingly so in respect to the turquoise colour. All English china, however, does not exhibit the same degree of softness; for in order to avoid the risks of over-firing, and for the sake of cheapness, a glaze which is too hard for the colours is often used; but, in the present Exhibition, as in the previous one, there are pieces quite as good as any old Sèvres ones, and, were it not for horrifying the amateurs of this favourite pottery, we should say, better. For the practical demonstration of this bold opinion, we might refer to the Greek vase of the same shape as the one by M. Solon, also the production of Messrs. Minton. The painting, which represents two reclining figures supported by Cupids, is perfectly bright and as glossy in all its parts as any old Sèvres piece. The turquoise colour of the ground is of a clear and pure tint, and the ornamentation, in white enamel and gold, forming the outer frame, decidedly novel. By the execution of this work, Mr. Yahn, its painter and designer, is entitled to great credit. In the same case as the above is another vase, which commends itself by the same qualities, we mean the blue vase, ovoid in form, on the body of which the same artist has represented, on a light sky, a great number of Cupids, grouped or flying, in every possible attitude.

Examples of English porcelain in Exhibition.

Looking at the generality of the painted china pieces in the English part of the Exhibition, it is easy to perceive that they have a character of their own. If the decorations have not quite the freedom and the spirit of the French, although there has been much progress in that direction, the colours are pure, the execution careful, and the gilding generally very good. It has been said at times, that our leading firms derived considerable credit and profit from copying old Sèvres pieces, and we cannot deny that formerly many copies of them were produced; also, that in many instances, the elegant Sèvres forms have been adopted; but, at the present time, we are getting more and more free from that parentage—the shapes, as well as the decorations, being almost entirely our own. For our independence on this account, we might safely refer to the great variety of original ornaments exhibited, and to the very limited number traceable to foreign origin. We might draw attention to the large oval vase from Messrs. Copeland's manufactory, which, with many others painted by M. Hurten, are amongst the best in the Exhibition. The pair of vases, of a light turquoise ground, painted with figures, after Bouguereau, by Mr. Rushton, at the Porcelain Works of Worcester, are creditable to

the manufacturer as well as the artist. The same remark may be applied to the vases produced by Messrs. Rose & Co., and exhibited by Mr. R. P. Daniell, as well as to many specimens from Messrs. Brown, Westhead, Brownfield, Barlow, and others, to whom our colaborator specially entrusted with the report on the porcelain, will do full justice.

Imitation of Limoges painted enamels from Worcester.

The imitation on china of the old Limoges enamel is not new and has been carried out by the Worcester Manufactory, Messrs. Copeland, and Messrs. Minton; the number of specimens of that class is this time much reduced, and is likely to be still more so by the death of Mr. Bott, who was well-known for the beautiful works executed at Worcester in the course of the last twenty years.

The important vases executed by this artist are particularly interesting, not only on account of their being the last pair he painted, but that he died just after perfecting the second of the pair. The subjects are after Maclise, and illustrate the most striking incidents of the Norman Conquest; one vase might be called the William, and the other the Harold, vase.

We cannot but congratulate Mr. Binns, the eminent manager of the Royal Manufactory of Worcester, on his energy and enterprise in undertaking works which, like these, do not take less than two years for their completion.

The process for producing these paintings is not very difficult, and we might say that their principal value rests in the excellence of the design and the talent of the artist to whom the execution is entrusted. They may be done on a blue or black glaze, laid on the surface of the biscuit, or on a black body covered with a transparent glaze. The process is perfect when the white enamel is bright and glossy, and incorporates itself well on the soft substance placed underneath.

Etching on porcelain.

But we must not forget that we are in search of some of the most remarkable novelties, and to these we must return. One of them is the small pair of bottles, etched on china, by Mr. W. J. Goode. The etchings, sunk under the glaze, are produced by using the fluoric instead of the nitric acid usually employed by the engravers on copper; the result of this substitution is, that the design is deeply sunk under the surface, and it is sufficient afterwards to rub some gold or some colour in the indented parts, to render the design apparent. The patent process used by Messrs. Minton for gilding on china or earthenware, is very similar to the above; the contrast they get in this way between the sunk parts which are not burnished and remain dead, to those which

stand level with the surface of the glaze, and are burnished, is new and effective.

Turquoise enamels.

The greatest novelty in the china exhibited this year is the turquoise china, or china covered with a turquoise enamel, the pattern being executed over it with white or differently coloured enamels. This turquoise, apart from the old Sèvres ware, can only stand on material made in this country, and to produce it on any hard porcelain is simply an impossibility. We are, then, without rivals in this article, and amongst its producers Messrs. Minton stand indisputably foremost. In the year 1867 they began this new style of decoration by imitations on china of the old Chinese cloisonné, and since then the richness and the depth of the colour greatly improved. If we cannot say that these imitations are as sober in effect as the ornaments executed on metal by the Chinese, they are quite as harmonious, and considerably richer. A tall pair of bottles with ribbon handles are the largest specimens of that class, and are recognisable by the red fishes placed on each side of a circular panel, with a Chinese key over it. The best piece of colour, however, is in the next case. It is in the form of a cylindrical vase, on which the artist, Mr. Aaron Green, has painted some Chinese birds, resting on the branches of a bamboo. We do not think that, for purity of the ground, glossiness of colours and finish, there is a modern or oriental piece which can come up to this for perfection in enamelling. With the same turquoise Messrs. Minton exhibit many vases or ornaments, decorated with flowers by Messrs. Simpson & Pilsbury, all of them well arranged in the design, and showing a great freshness in the colouring. They have also some birds painted by Mr. John Slater, amongst which might be remarked a flat bottle, with a white parrot. The practice of painting on porcelain, by mixing opaque enamels in the colours, originated with the Chinese, who from their application obtained a great variety of effects. We are glad to see their use is spreading, as in a few years they will greatly assist our decorators. We find one instance of their intelligent introduction in some octagon dessert plates produced by Messrs. Copeland, which, besides their delicate paintings in the middle part, have their edges neatly perforated and richly gilt.

Permanent frescoes in petrified enamel.

As a remarkable instance of the assistance afforded by opaque enamels in general decoration, we must mention here Mr. C. M. Campbell's patent for producing a permanent mural decoration, which, by the quality of the materials used, falls under our notice, although we do not pretend to infringe on the department of the reporter for the mosaics. Two reproductions of pictures by this

Permanent frescoes in petrified enamel.

process will be found in the Fine Art Galleries; one represents Ghiberti, from an oil painting by Fisk; the other is a copy of a fresco by Marks, both executed by Mr. Thomas Allen. As there was at first some misconception or doubts expressed, not on the permanency of the process, but on its flexibility for adaptation to any kind of wall decoration, it was of importance for Mr. Campbell to show by these two examples that frescoes, as well as oil paintings, could be executed in the manner desired, and that there is nothing to prevent the wishes of the architect from being realised. The detailed description of the patent we leave to our collaborator. We explain only for the proper understanding of this subject that the mosaics used are not stained in the mass, like glass mosaics, or those produced by Minton, Hollins & Co., which may be seen in the same room, and which are made from clays differently coloured, and afterwards put together; but in these two examples, produced by Mr. Campbell, the subject is painted on the surface of small hexagons, in vitrified stoneware, which are joined so as to form the ground-work of the picture. On this foundation the painting is executed by means of enamel colours having the same appearance as those prepared for painting on canvas, and there is nothing in the way to prevent the giving to these pictures the highest degree of finish when necessary. One must not believe that a similar effect could be produced by using the ordinary colours for painting on china and earthenware. In that case it would be impossible to work with a sufficient body of colour, and the execution would look poor, and deficient in tone and power; in fact, it would be impossible to obtain the imitation of a painting in which the high lights would require a great thickness of colour. With the enamel colours used in Mr. C. M. Campbell's process, not only this may be done, but as in the process of firing the colours do not change or sink, they retain the spirit of the brush, and may be afterwards glazed on the surface with transparent colours as in an oil painting.

It is on the facility which this process affords, to reproduce oil or fresco painting, that we insist; the permanency is unquestionable, and the specimens exhibited can stand any test to which they may be submitted. Knowing that all the ancient and Italian frescoes of the last centuries have perished, we would not urge the advantages of Mr. Campbell's patent if it had been used for the mural decorations now existing in the Houses of Parliament. The good state of preservation of these paintings has been discussed; and it is for their authors to say if they are, or are not satisfied with the process they have employed. We can safely say, however, that there are only three modes of securing real permanency, and these are—the glass or Byzantine mosaic, such

as produced by Signor Salviati; the mosaic in coloured clays, by Minton, Hollins & Co.; and the mosaics painted over with hard enamels, by Mr. C. M. Campbell. It belongs now to the architects and other parties concerned to decide which of these three will best suit their purpose.

Pottery mounted in damascened metal.

There are three pieces in the Exhibition deserving a special notice. We mean the pieces of pottery mounted in iron, damascened with gold and silver, and which are the results of the combined exertions of Messrs. Minton and Senor Placido Zuloaga, from Eibar, in Spain. One of them is in china, with turquoise ground, enamelled; the seeond in cream-colour earthenware, inlaid with coloured clays; the third, in red clay of a porphyry colour. This last is in the Ceramic Court, No. XV.; the two others in the Fine Art Gallery. There is but one opinion about the excellence of the damascene work for which Senor Zuloaga is recognised as the best—we might say, the *only*—producer, for he stands alone in his acquaintance with the processes used by the Saracens in the olden times. He is well known in Europe since the Paris Exhibition of 1855, when he had a magnificent display of fire-arms. We do not know how the public will appreciate the combination of materials so different in nature, but the experiment was worth attempting; and we think Messrs. Minton entitled to some credit for this undertaking.

Earthenware its special characteristics.

We will now rapidly review the display of earthenware, the class which forms the most important part of our trade.

To answer its purpose, it must fulfil some conditions which would be of no importance in a pottery specially devoted to artistic purposes, but which in this case are absolutely necessary. It must be white, dense, and be coated with a glaze not easily scratched by the pressure of the knife. There is more than one sort of earthenware; the lowest in quality is intended for the use of the poorer classes and for exportation; its extraordinary cheapness and the rapidity of its production do not permit of its being highly finished. The other, adapted for the better classes, is, on the contrary, a very superior article, for which we have no rivals in the world. We find, however, on the continent, chiefly in France, Luxembourg, and Prussia, very large manufactories which produce earthenware nearly similar to ours in whiteness of body and glossiness of surface, but which does not possess the same dense texture, and the same resisting powers. The cause of this is not in a deficiency of ability in the foreign manufacturer, but in the inferior quality of the materials they are obliged to use. England is greatly favoured by the superior quality of the clays used in the production of her pottery, and by

Earthenware: its special characteristics.

the quantities, in appearance inexhaustible, that may be procured from the three southern counties of Devon, Dorset, and Cornwall.

The processes for making earthenware are not complicated. The clays from the two former counties, which alone would be too plastic to be conveniently worked, are mixed with a certain quantity of ground flint, which obviates this objection, and at the same time whitens the colour. This mixture is the foundation of what is called cream-colour. The superior class of earthenware requires the addition of a certain quantity of Cornish clay or kaolin, which is itself a very white material, resisting the action of the fire better than the Dorset or Devon clay. A small quantity of Cornish stone is also necessary to give a closer and a denser texture. To complete the summary, we will add that the ware is submitted first to the strong heat of the biscuit oven, then glazed and fired a second time at a lower heat to melt the glaze. In the case of some pattern being printed on the ware, it must be done on the biscuit before the glazing takes place.

Examples of earthenware: now to be judged.

It would be impossible to tell which, amongst the earthenware exhibited by so many different firms, is the best in quality. This could be done only by a series of experiments, and even then the conclusion would be imperfect, unless the compared specimens were fired together in identical places, and possessing the same form and thickness—conditions that it would be very difficult to meet. However, with our experience on this subject, we may safely affirm that the great majority of these are of the most excellent quality, and leave very little room for improvement. The decorations are extremely varied, and much more free than they used to be some years ago. Amongst the novelties in this direction we may notice the Naturalist set, exhibited by Messrs. Minton, from designs by Coleman, and engraved by himself by the graphotype process. This process is well adapted for a work like this, which requires the original touch to be retained, an impossibility by the ordinary line engraving on copper. This set is very bold and peculiar, the decoration consisting of all sorts of sketches, such as poultry, fishes, birds, sprigs of flowers, and any other thing which took at the time the fancy of the artist, placing it haphazard on the various pieces. We have remarked, also, a set of twelve plates, representing the months of the year, by Messrs. Simpson & Sons, and executed by hand under glaze; the treatment is very free and artistic, although carried out with very little labour. Messrs. Wedgwood's cream-colour ware is, certainly, a first-rate material to paint upon; its creamy-white appearance, and the softness of its glaze, are great inducements for its adoption. It shows to all sorts of advantages when placed in the hands of M. Lessore. For many

Examples of earthenware: how to be judged.

years the names of Lessore and Wedgwood have been intimately associated, and if the artistic productions of this combination are not a *new* feature in the Exhibition, they are always most pleasing to contemplate. M. Lessore is well-known as a colourist, and, if any doubts were raised, which is not likely to be the case, we might refer to the several painted slabs in the Picture Gallery, especially to the two plaques representing (No. 63) a Leda, and (No. 27) a group of children playing in a landscape. These are treated with the utmost spirit, and the colour of many of the parts, chiefly the landscape, might be signed by the old Venetian masters. Amongst the quantity of pieces, treated in that light and spirited manner peculiar to M. Lessore, we would choose as one of the best types the pair of vases representing the Seasons, which will be found in the middle of the case occupied by his work in Gallery No. XI.

Messrs. W. B. Simpson & Sons are new contributors to our Exhibition, and their first display is such as to leave a favourable impression on the minds of those acquainted with art pottery. These gentlemen devote themselves almost exclusively to the production of tiles and slabs for artistic decoration. They have five or six chimney-pieces, all varied in style, and all of them evincing a great power of execution; from a distance some of them give the notion of Florentine mosaics. These works are painted on biscuit, and covered over with a decidedly yellow glaze, which has the effect of producing harmony in every part. It would be difficult to say which is the best piece in this Exhibition, and there are many. The most important are the wall decorations, for the sides of a staircase, executed for Sir Dudley Majoribanks' residence in Scotland. Their principal feature consists of a scroll representing a white peony, arranged very artistically on a blue ground. The whole of this work is remarkably quiet and harmonious. Mr. Eldon, the painter and designer, has shown great talent in the execution of the majority of pieces exhibited by these gentlemen.

To meet the taste of those who might object to the usual glossiness of tiles, and wish at the same time the permanency of a ceramic decoration, Messrs. Simpson have executed, on biscuit tiles, a pilaster in the Italian style, the painting of which appears quite dead. The result of this attempt seems to have deprived the specimen of its ceramic character, and we have a doubt if, when accidently soiled, it could be effectually cleaned.

Another new exhibitor is Mr. J. W. Coleman, who, in the last two years, in connection with Messrs. Minton, has produced a special class of art pottery, which has created quite a sensation, and which is very much sought for by amateurs. Indeed, there is great difficulty in procuring specimens, and it is to be regretted that his contributions should not be more numerous. The material chosen

Examples of earthenware: how to be judged.

by Mr. Coleman is a buff biscuit, which gives a good foundation for the flesh-colour of his figures, and which is afterwards glazed. There are not more than four pieces in the Art Gallery, and two in Room No. XI. The little plate, with the head of Marguerite, on a blue ground, gracefully strewed with a few flowers, cannot fail to be noticed.

M. Mussill, a clever flower painter, who, since the French war has taken refuge in Messrs. Minton's manufactory, proceeds in a different and new way. Independently of his talent as a painter on china, this artist excels in painting flowers in body colour; being, consequently, provided by the firm with a set of biscuit colours, with which he could work on biscuit in the same way as on paper, he has produced, on a tinted biscuit, several pieces very effective and interesting, as being the first painted by this new process. We will call the attention to a pair of red slabs, which will be found in the Circular Gallery, leading to the Albert Hall, and particularly to the white orchids on both of them. In the Gallery No. XI., some specimens by the same artist will be found in a case, where they are associated with some inlaid pieces of the Henri Deux ware; they will show that the colours used are not only perfectly opaque, but that the most delicate touch has withstood, without being affected, the action of the glaze in the glost oven.

Modern wares in the style of majolica and Palissy wares.

By the name of *majolica* we understand the ware made with a coloured body, and coated over with an opaque enamel; and we will call *Palissy ware* the ware made with the same body, but covered with transparent glazes of various colours. We make this distinction, as in England we are getting in the habit of naming majolica any pottery covered with a coloured glaze. Our English majolica is not made in the same manner as practised on the continent, for the reason that we have not in England the geological formation from which the proper clay is extracted. The clay used for this purpose in the western parts of the continent—from Holland to the north of Africa, including Italy, contains carbonate of lime in a very plastic state. This, without any mixture, is the material used; and as the temperature necessary to fire the biscuit and the enamel is not sufficient to expel all the carbonic acid contained in this clay, we have a very simple way of knowing a real majolica from another, as a drop of a mineral acid on any part of the body not covered by the enamel will cause effervescence. By a single look at the enamel laid on the surface, it is difficult for any one having a little experience in pottery to make a mistake. In England we make majolica from various clays, chiefly from those extracted from our coal measures, which stand a

Modern wares in the style of majolica and Palissy wares.

hard fire, give a dense biscuit, and have generally a light buff colour; but, as they do not contain any lime, the biscuit made from them cannot be expected to have the same affinity for the enamels, which consequently are not so "fat" nor so glossy. However, as majolica is only applied in this country to articles of decoration, it answers our purpose very well, as it resists the frosts, and is apt to receive almost any colour. The coarsest majolica comes from Spain and Morocco. A case full of this last is exhibited in the Gallery No. XI., and contains specimens of two sorts: one, painted in blue only, on the white, comes from the province of Fez; the other, conspicuous by patches of red, which is nothing else but a solution of sealing-wax, comes from the province of Tetuan. The Spanish majolica, although of a glaze a little more perfected, is still rather coarse, and its ornamentation in the worst style in practice during the last century. Messrs. Maw & Co., from Benthall Works, Broseley, have exhibited some embossed tiles for architectural purposes of which the enamel is only partially opaque, and which possess a sober and harmonious appearance. The roughness of execution in these is intentional, and is considered a desirable quality for works of that kind. These gentlemen have collected in a frame the various specimens of coloured enamels they can produce, and which are all very good. In the same room the Worcester Porcelain Works exhibit, under the name of Della Robbia ware, some pieces which are an approximation to majolica, but a little too glossy and weak in colour, if they are really intended to imitate the works of the celebrated master. The "Bather Surprised" seems the best in this collection. Messrs. Minton & Co., who created the English majolica twenty-one years ago, have a few pieces only, the most important being a large round fountain or jardinière, for it can be used for either purpose, and is a very creditable work for a young modeller, Mr. Thomas Longmore. It is decorated in blue and white enamel, with cupids resting in nets on the sides. It might be as well to say, for the information of those engaged in architectural pursuits, that outside the Ceramic Galleries the soffits of the seven arches of the new building erected in Exhibition Road are in majolica, and that the new staircase at the end of the Ceramic Court, in the Kensington Museum, has been executed in the same materials by Messrs. Minton, from drawings and models by Mr. Moody. These are rather important undertakings, and Mr. Cole must be thanked for giving a fair trial to this new material.

The contributions in Palissy ware are much more numerous than those in majolica. The principal exhibitors, and those who have the largest sale for these articles, are Messrs. Minton, Wedgwood, and George Jones, their exhibits forming an important feature in the

Modern wares in the style of majolica and Palissy wares.

Northern Gallery. Messrs. Minton have an oval jardinière, richly enamelled, which has been modelled by Mr. John Henk. It is one of the largest pieces made in Palissy ware. Several cases are filled with the productions of Messrs. Wedgwood and George Jones, in the shape of vases, baskets, candlesticks, and other ornaments, amongst which it would be difficult to name the best. Mr. G. Jones has also a pretty dessert service; Messrs. Wedgwood another, with green glaze in centre, by the process Dutremblay, and vases imitating the old Wedgwood cream-colour ware, spotted in brown all over, covered with a light green glaze, and partially gilt. These vases are not very striking at first, but will be sure to be appreciated by people of taste. Messrs. Maw & Co. have a case full of vases, dipped in different glazes, many of them in neutral tints; some, on the contrary, remarkably rich—their yellow, for instance. The best pieces produced by Messrs. Maw are a pair of square jardinières, by the process Dutremblay, glazed with a deep bluish green. They will be recognised by the flying storks introduced in the decoration.

From Portugal we notice a case of various ornaments which, although roughly treated, are very effective.

The kind of pottery called in Italian graffito, or sgrafiato, took its origin in Italy towards the beginning of the 15th century, and it is not unlikely that the first specimens were produced in the province of Perugia, from which circumstance it took the name of Perugia ware, by which it is still known to some people. When a truly artistic feeling revived in Italy, the potters of that period, like the artisans belonging to other trades, exerted themselves to produce an article better, or differently ornamented, than those already existing. As they had not yet the knowledge of the enamels which were used before that time by the Moors in Spain, and afterwards introduced into Italy by Lucca della Robbia, they took advantage of what they had at hand, consisting of two clays of different colours, and the glaze supplied by the trituration of a natural lead ore, which gave, when melted on the ware, a rich yellow glaze. Making, then, the body of their vessels in the darkest clay they had, they plunged them, when half dry, in a slip made of the lighter clay, a thin coat of which remained evenly spread on their surface. This being accomplished, and the piece sufficiently dry, the potter could, with a sharp wooden or steel point, trace a design or pattern on the surface. The point removing the upper coat caused the lines to appear, with the dark colour of the body underneath. When the piece was thoroughly dry, it was glazed and fired, the glaze being touched in parts with other slips made from manganese or copper, so as to produce green or violet patches, and increase thereby the richness of effect. The old specimens of this ware are particularly

interesting. The process of slipping one clay upon another is still in practice in France, Spain, and Italy, but only for the cheapest kind of pottery, and without any graffits; it is also extensively practised in England for the earthenware trade. Now, it may be asked, what is the advantage of such a process, when the ware can be printed or painted so easily? The answer is, that you can get from its use original work of a simple and genuine appearance, in which the potter can express his feeling, whatever it may be; and also the production of harmony in the whole.

Modern wares in the style of majolica and Palissy wares.

It is a fact to be noticed, that if the potter confines his materials to natural clays, the effect is generally a good one. The scale of colours of these plastic materials, running from ivory-white to red, by the intermediate tints of ochre or sienna, causes every tint to assimilate more or less with those in contact, and the harmony of the work is secured. The exertions made at the present time to produce or revive something new are such that the sgraffito process has been investigated as well as the others, and Messrs. Minton and Messrs. Maw are showing, in their first trials, that they can undertake even works of art in this unpretentious material. The vase with snake handles, covered all over with figures and Italian arabesques, and a low-shaped jardinière, ornamented from some drawings, by A. Stevens, which were originally intended for majolica, are amongst the best of their class.

In the trophies in the Room No. XII. will be found two garden vases treated by the graffito process with Persian ornaments, one on a light, the other on a dark ground, which will assist in showing the variety of effect that can be obtained. The same remark may be applied to a pair of Chinese bottles, decorated with a dragon, which will demonstrate that the same green glaze affects different tints, when placed on clays of different colours. Amongst the specimens produced by Messrs. Maw & Co., may be noticed a cylindrical vase, with figures, probably of the Muses, and a fine jar, with a medallion of Peace on the front; both of these are covered with a rich yellow glaze. The little plate, with the head of Beatrix in the centre is, we think, the best piece produced by these gentlemen. For small pieces, which have to be produced at a less cost, they have adopted one of Messrs. Deck's processes, which is to have the indented lines produced by the mould, afterwards filled with a clay of a different colour—or else, without using the two clays, the ware is dipped in a coloured glaze, which, by its accumulation in the indentations, will bring out the pattern in a darker tint than the rest of the piece. In some provinces of India, vessels of a rich and harmonious quality are produced by an effect somewhat similar to the sgraffito pieces. In this case the ornaments are not scratched nor pencilled; they are produced by a thick slip of the lighter clay running from

an utensil in the shape of a ball or teapot, in which a small quill pen takes the place of the spout. In the Northern Gallery, and close to the Egyptian Pottery, are two cases from Scinde, and in one of them we would call attention to the jar (No. 4) covered with a green glaze.

Reproductions of the so-called Henri Deux ware.

As we were speaking of harmony secured by the use of natural clays, it seems right to refer to the faïence d'Oiron, called Henri Deux ware, before the discovery of the place where these works of art were produced. We hope that the elucidation of the mystery which once surrounded the origin of these charming vessels—an elucidation due to the discovery of M. Fillon—will not affect the estimation in which they are held by their admirers, although they have been thereby deprived of a favourite topic for controversy. This is the only pottery in which clays of different shades are worked together—I mean inlaid one in the other; but the process, although applied to delicate and complicated vessels, was not new, for it was no other than the old encaustic process, extensively used in the 12th century, and not unlikely before that period, for the pavements of our cathedals and churches. Was the process known by the select and intelligent party who, according to M. Fillon, tried to break the tediousness of country life, by putting in practice the little knowledge they had of the art of potting? It is not likely. It was enough that by accident a die, or a piece of ornamented metal, should have been stamped on a bit of soft clay, to suggest at once the notion of making vessels, ornamented in the same way by the repetition of the same process.

All the existing pieces of this ware believed to be the earliest in date are decorated in like manner by concentric bands of ornaments, produced by the impression of tools, probably borrowed from a bookbinder. In all these, the ornament appears always in brown clay over the white ground.

When at length these intelligent people had become well acquainted with this process, they tried to reproduce the niello or strap-work, and other complicated designs of the Renaissance. Here they displayed considerable ingenuity and cleverness of manipulation. It would be too long, without illustration, to describe the various processes used for every one of these pieces. It is sufficient to say, for the present, that the general forms and the moulds of the different parts being settled, every distinct portion of ornament was worked in separate bats; that on these the ornaments were stamped, and the indentations produced in that way were filled with a clay of a different colour, taking care to remove from the surface the superfluous quantity.

The materials being so prepared, the separate bats were then cut

into the proper form, put in the moulds side by side, and backed with a general coating of clay, which was to unite these fragments together and form the inner surface of the piece. All this seems simple enough; but, unfortunately, in practice the process is attended with all sorts of difficulties, the principal being to keep the impressed ornament quite clear, and not to distort it when it is brought down in the mould.

Reproductions of the so-called Henri Deux ware.

Messrs. Minton are the only exhibitors of this particular ware. They have reproduced two of the celebrated candlesticks, and in these, as in the two other pieces—a biberon and a covered tazza—the inlaid ornaments are shown in all their perfection of outline. We must mention here the name of the maker, Mr. Charles Toft. Of course there is no attempt in these pieces to imitate the exact colour of the old ones; this would have been easy enough. Messrs. Minton wished only to show, by this interesting part of their exhibition, that they knew the process thoroughly well, and that they could reproduce these pieces, or any other on the same principle, if collectors wished them to do so.

Reproductions of the Persian ware.

We will now examine the Persian ware, which we consider as the most difficult problem for our English potters. It is well known that, for beauty of colours and effectiveness, there is no pottery equal to the Persian, and, in the course of the last ten years, specimens, consisting chiefly of old pieces, have been in great demand by the collectors.

The processes of this manufacture have been surrounded by mystery, the depth of which was considerably increased by our ignorance of the presiding laws in the development of richness in the vitrified colour. Chardin, a French traveller, who visited Persia in the course of the last century, describes the ceramic processes of this country in a way which is not quite intelligible. As he was not a potter, we need not wonder that it was so, and we cannot comprehend whether his description applies to the porcelain or Persian earthenware; perhaps they apply to both, for evidently they are but one and the same thing. The degree of temperature, reached during the firing process produces a vitrification more or less perfect. A few years ago a new theory was brought forward, assigning the island of Rhodes, in the Greek Archipelago, as the seat of this manufacture, from which the name Rhodian ware is derived. Although we do not contest that dealers may have gone there and brought back numerous pieces, we are strongly inclined to contest the conclusion they have drawn on the subject. We might give many reasons for our disbelief, but we will only mention the following:—1st. That the earthenware and Persian porcelain are one and the same thing, made by

Reproductions of the Persian ware.

the same processes, with the same style of decoration, and certainly there is not one who would pretend that porcelain was made in that island—besides, the fact is, that there is no earthenware manufactured there at the present time. 2nd. That it would have been impossible, out of Persia, to retain so strictly, and in its minor details, the style of decoration of that country, and escape so completely the Byzantine and mediæval influence. And 3rd. That there is not likely to be found in the island a quality of sandy clay, so very like the Persian, that in the specimens brought you could not distinguish them from real Persian pieces.

I think that at the time of the Crusades, or since, there must have been a central depôt, or market, in that island for these goods, from which they were distributed in all the countries brought under the rule of the Mahomedans, and this accounts for the fragments to be found in the excavations. At all events, nobody will deny, that from a very early period down to the present day, Persia is the principal seat of this manufacture, and that the oldest specimens are the most perfect. That the general processes have extended towards the East, beyond the boundaries of that country, is evident from the magnificent tile decorations of some of the old Indian temples, while at the present time specimens of the Indian pottery almost equal in quality those of the Persian. In the coarse pottery from Scinde, in the Northern Gallery, there are three or four specimens which, in form, body, glaze, and colour, are evidently derived from the neighbouring country. The Persian ware seems to have declined on this account—that the examples recently brought are far from having the refinement and the richness of the old. Nothing could surpass the beauty of these, in which the most striking effect is obtained by the turquoise ground, whereon the other colours are thrown most harmoniously. We are greatly indebted to Mr. Adalbert de Beaumont, who died not long ago in Paris, for the attempts he made in the course of the last ten years to reproduce this kind of ware; and also to his partner, Mr. Colinot, for some very clever and richly-coloured specimens they have lately produced. M. de Beaumont had the advantage of travelling in Persia, and if he did not practice in that country, he brought back with him a large quantity of specimens and documents of very great assistance to those engaged in similar pursuits.

However, we consider Messrs. Deck, of Paris, as having realised the nearest approach to the Persian ware, and to have combined the knowledge of eastern processes with great intelligence in the art of ceramic decoration. Our English potters had more difficulties to overcome than our neighbours, some of the principal arising from the nature of our fuel, and the quality of our clays. However, the majority of the obstacles have been surmounted, and

Messrs. Minton can present some pieces of Persian ware remarkable for the richness of their colours. This is chiefly the case in respect to the torquoise glaze, which is of a great depth, and the brilliancy of which excels any colour that might be placed by its side. Reproductions of the Persian ware.

In the Room No. XII. there is a garden vase, with a black scroll ornament under the turquoise glaze, especially to be noticed on this account. As a proof that the principles applied by these manufacturers are the true ones, we will call attention to a panel of tiles, with a bold pattern, in which the three favourite flowers—the tulip, the carnation, and the hyacinth, are introduced. It is a genuine Persian pattern, and those acquainted with the original ware will, perhaps, especially regard the flowing of the outline where it comes into contact with the green.

Messrs. Minton have also a specimen of plum-colour glaze of great richness. This colour is rarely seen except on some old Sèvres pieces.

Messrs. Maw have also exhibited some turquoise bottles, which, although not so deep in tint as the above, are very delicate in tone. Their panel of embossed tiles, with Persian pattern in turquoise blue and gold, is good in every respect.

The success which has attended Messrs. Minton in reproducing the Persian colours, has induced them to apply these to the decoration of wall tiles, which form a feature in the Room No. XIV., and which are easy to recognise on account of the prevalence of the turquoise and blue colour. The panel (No. 104) might be given as an example in this category, and likewise the pattern with lozenges and octagons entwined together, placed in the circular gallery leading to the Albert Hall.

Messrs. Minton, Hollins & Co. have also several Persian patterns of earthenware tiles, excellently drawn, although not quite so bright in colours as the above, their general tints being the blue and the green, relieved by a few touches of red. Such numbers as 56, 130, 133, like all others of that class, are very good. The display of tiles in this Exhibition is far superior to any previous one, and this will be understood when we mention that the trade is in the hands of such manufacturers as Messrs. Minton & Co., Minton, Hollins & Co., Robert Minton Taylor, Maw & Co., and the Architectural Pottery Company from Poole, in Dorsetshire. It would require the services of a special reporter to describe *all* the different sorts of tiles made by these five firms, and we have no room for such an undertaking.

In consequence of the variety of specimens produced, and the numerous improvements and novelties exhibited, we have already occupied the space allotted to us, and we regret to leave unnoticed in each class so many interesting pieces, but the other reporters

Reproductions of the Persian ware.

will, I have no doubt, do them full justice. Let us say, in conclusion, that although this Exhibition has not the magnitude of the former ones, it has enabled us to ascertain that the impulse given to our English pottery in the course of the last twenty years is far from being diminished. We believe, on the contrary, that at no time the spirit of investigation, and the strong wish for improvement in every way, have been evinced in a more decided manner. Let us hope that all these new inventions will be like so many seeds put into good ground, and that from them will grow many important and profitable branches for our English trade.

REPORT ON STONEWARE

In the International Exhibition of 1871.

By LIEUTENANT J. G. S. DAVIES, R.E.

Origin.

The origin of stoneware is uncertain; possibly it is almost coeval with fire-burnt earthenware, and owes its origin to the accidental over-baking of the latter. Its manufacture does not appear to have been recognised in Europe as a distinct branch of the art of pottery until about the beginning of the 16th century, when it was manufactured in Flanders in very large quantities, and distributed over nearly the whole of Western Europe, the Grès de Flandres being at that time of famous and wide-spread notoriety. There are, however, well-authenticated evidences of its existence at a date long antecedent to this, it having been imported into England from Flanders about the year 1400.

When first manufacture in England.

It is difficult to define the exact time at which its manufacture was first undertaken in England; it is said to have been introduced by certain Dutch settlers, who, about the year 1640, established themselves at Lambeth, Fulham, Caughleigh in Staffordshire, Sandwich, and other places; it was not, however, until about the year 1680, the date of the discovery of salt-glaze—attributed, like many other useful inventions, to accident—that its manufacture seems to have been seriously proceeded with in this country, the delft and Dutch stone having superseded English wares up to this period.

The great improvements which followed on the discovery of salt-glaze, together with the patronage which the ware obtained at that time from all classes, Royalty included, appears to have firmly established its manufacture, and to have changed it into an important and increasing industry, which has gradually developed itself, and, notwithstanding various vicissitudes, has extended to nearly all parts of the United Kingdom where suitable descriptions

of clay are found, until at the present time the seats of its manufacture are pretty evenly distributed.

Purposes to which applied.

The purposes to which this ware has been applied have undergone from time to time very considerable changes. In the earlier days of its manufacture in England it was almost exclusively devoted to small ornamental statuettes, dinner and tea services (a very handsome dinner service is stated to have been made for Charles II. at the Fulham Pottery), jugs, jars, and various other small utensils; gradually, however, as metal, glass, porcelain, and the finer descriptions of pottery superseded it for ornamental purposes, new and more practical fields presented themselves one by one for its employment, the invaluable aid which it affords both the manufacturing chemist and the sanitary engineer being at the present time among the most important of its uses.

Classes of stoneware.

Stoneware consists of two different and distinct classes—viz., fine, and coarse or common. The former kind embraces the Staffordshire ware, and the celebrated jasper, basalt, porphyry, and other wares introduced by Wedgwood, which are so nearly allied to porcelain in their nature; and the latter comprises the chemical and sanitary ware, together with the innumerable jugs, jars, bottles, etc., with which every one is familiar. It is on this common stoneware alone that I am about, in the following remarks, to report; and I propose to regard the subject, in the first instance, from a practical point of view; and, secondly, so far as it will admit, from an artistic point.

Common stoneware may be roughly subdivided into the following groups:—

1. The ordinary brown salt-glaze ware, such as is generally used in chemical and sanitary ware.
2. Bristol ware, which is used principally for jugs, jars, bottles, filters, etc.
3. Terro-metallic ware, more commonly known as Blue Staffordshire ware, used for paving footpaths, stables, and other buildings.

Composition.

The principal substances used in the composition of stoneware are the beds of pipe and other plastic clays generally found above the chalk and coal formations. These clays, which are usually of a white or whitish-grey colour, contain but little matter which is fusible, the greater portion of their constituent parts being infusible, except under the flame of the blow-pipe, or of similar intense heats.

Composition.

The particular clay of which the greater portion of the objects in the Exhibition have been made is brought from the famous and extensive bed at Poole, in Dorsetshire, though there are examples made of clays from Devonshire, Staffordshire, Lancashire, and other counties, and also from admixtures of two or more of the foregoing.

In the construction of small articles the clay is generally used pure, but when large objects are to be made, it is nearly always mixed with a small proportion of "rough stuff," ordinarily consisting of broken stoneware, ground to a fine powder, this addition being necessary to prevent undue shrinkage when drying and burning, all plastic clays being particularly liable to such contraction.

Characteristics.

The differences between some of the coarse descriptions of pottery are so slight, I might almost say imperceptible, that it may not be considered out of place to state that stoneware can be distinguished from other wares by the semi-fused or vitreous state which it acquires, from the great heat at which it is burnt in the kiln (considerably above the melting point of silver); its great hardness and density of body—it will emit sparks when struck by a steel—and its resonance when struck.

Methods of glazing.

It is sufficiently dense and vitreous in its mass as not to requier glaze; it is, however, generally glazed, a very common method being to throw in towards the end of the firing, some common salt through purposely-constructed holes in the top of the kiln. The salt becomes volatilised, and acting through the medium of aqueous vapour which is present in the kiln, on the silica of the clay, a fine film of soda glass is deposited or absorbed on the porous surface of the ware. This glaze is very differently assumed by different clays; some hardly show signs of it at all, while others present quite a lustrous appearance, due in great measure to the difference of affinity which particular clays possess for the salt.

There is a second method of glazing stoneware, which is effected by immersing the object when dry and ready for the kiln in a liquid glaze composed of a number of different ingredients, each manufacturer using his own particular receipt. It is this method of glazing which constitutes Bristol ware.

Chemical ware.

Turning now to a general consideration of the application of stoneware, I will first allude to the chemical ware which is employed principally in the manufacture and storage of acids. It is found that stoneware, owing to its density and impermeability, is eminently fitted to withstand the corrosive effect of nearly every kind of acid, whether hot or cold (hydro-fluoric acid,

Chemical ware.

which has a peculiar action on all substances containing silica, being almost the solitary exception), but it is more extensively used in the manufacture of nitric and muriatic acids, and of their various combinations, such as nitro-glycerine, etc., than of other kinds.

It is, I think, unnecessary to enter into a full description of the manufacture of this class of ware, but there is, perhaps, no better way of enabling an opinion to be formed of the merits of particular objects than by recounting a few of the chief difficulties which have to be encountered and overcome in their construction. With this view, therefore, I will briefly describe the manufacture of a 250 gallon acid tank, an example of which will be found in the Exhibition.

In the first place, after the clay has been properly prepared and mixed with a due proportion of "rough stuff,"* it is thrown upon the wheel (this process can be seen on a small scale in the Machinery Annexe), and a small section built up; it is then left to dry and harden a little, the clay, in the soft state in which it is worked, not being sufficiently strong to support a weighty superstructure. When a sufficient hardness and stability has been attained, a second ring is added, when it is again allowed to dry, this process being repeated until the whole tank is completed, the handles and other excrescences being then added in the usual manner. The length of this process, which in the case in point would occupy about ten days, induces a difficulty in the shape of unequal drying, it being obvious that, unless artificial means were resorted to, the lower portion of the work would be dryer than that more recently executed; to remedy this, wet cloths or other such contrivances are kept round these parts.

When the tank is completed it is allowed to dry very slowly, the greatest care being necessary to protect it from draughts of air or other causes likely to make it dry unevenly; the drying of a tank of this size would occupy about ten days. It is then removed to the kiln and burnt. The burning would occupy from a fortnight to three weeks, and it would require another week to cool.

The chief points aimed at in the manufacture of all chemical ware are—1stly, Sufficient density to withstand the action of the acids. 2ndly, Sufficient porosity to enable the ware to withstand rapid changes of temperature. 3rdly, Perfect equality of thickness, any inequality being fatal in sudden and extreme changes of temperature. 4thly, General perfection of workmanship, the smallest scratch or flaw being immediately searched out by the acid.

* "Rough Stuff" usually consists of old stoneware broken up and ground to powder.

Great advance in the manufacture of this ware.

As a proof of the great progress which has been made of late years in constructing vessels of large dimensions, I may state that forty years ago acid tanks were seldom made to contain more than thirty or forty gallons, and one for sixty gallons is specially mentioned on account of its then unusual size, while at the present time they are not unfrequently made to contain as much as five hundred gallons. This advance has been obtained, not by improvements in machinery—for the same wheel is used much as it existed 2,000 years B.C.—but by increased knowledge and improvements in each one of the separate processes through which the ware has to pass.

Stoneware grinding.

Stoneware, after it is burnt, admits of being ground to a very fine surface; in chemical ware this quality is turned to advantage and utilised in the construction of pumps, taps, and other fitments where a perfectly water-tight joint is necessary: not only, therefore, are the acid vessels themselves constructed of stoneware, but the pumps by which they are filled, and the taps through which their contents are drawn off, are so made that nothing but the ware itself comes in contact with the acid; the necessity for using metal, which quickly corrodes under the action of acid, being thus avoided.

Different methods of glazing chemical ware.

It may be noticed that this ware is in some instances glazed with salt, while in others it is painted with glaze on the inside only; this latter method is, perhaps, now more generally preferred, as it is thought to render it less liable to crack under exposure to rapid changes of temperature.

Sanitary ware.

Sanitary fitments form one of the largest and perhaps the most increasing branch of stoneware manufacture. The same qualities which are among its chief recommendations for chemical purposes also adapt it for employment in all descriptions of gullies, sewers, drains, etc., where an impermeable and water-tight body is desirable. This particular application of stoneware does not extend back for a period of more than about thirty years.

Manual labour superseded by machinery.

When first commenced, the manufacture of drain-pipes was entirely carried on by hand, a comparatively tedious and laborious process, they having to be thrown on the wheel in the usual manner, and if of large size, built up section by section in the manner I have already described in the case of an acid tank. In a very short time, however, machinery was introduced by which the pipes are produced at a great economy of both time and labour, and at the present day by far the larger quantity are so made. The machines used in their construction, though differing one from another in small and unimportant details, are all much on the same general

Manual labour superseded by machinery.

plan, and may be thus briefly described. The clay of which the pipes are about to be formed is placed in a strong cylinder of iron, in the bottom of which is a circular opening, corresponding with the exact solid section of the pipe; an iron piston, driven (usually) by steam, descending on the clay, forces it downwards, and through this opening, thus forming the pipe. Some machines form the socket as well as the body of the pipe, being fitted with a special mould for the purpose, but the majority form the body only, the socket being afterwards added by hand on the wheel. Bends (*i.e.*, bent pipes) of a slight curve are made by the same machine, and formed simply by giving the pipe a circular motion with the hand, as it is squeezed out of the cylinder. Bends of a rapid or double curve, such as syphons, are made in moulds, as are also most of the numerous other fitments appertaining to sewer and drain pipes, such as junction blocks, gullies, traps, and sluice valves.

Among sanitary fitments may also be enumerated damp-proof and ventilating courses, for house walls, cisterns, filters, sinks, and various other house and hospital fitments. Stoneware is also largely used in drainage and other works in conjunction with brickwork, the illimitable number of forms into which clay can so easily be moulded well suiting it for small and rather intricate constructions, which in brickwork would be difficult if not impracticable.

Bristol ware.

Bristol ware, which was first introduced by a manufacturer at Bristol some fifteen years ago, has been very favourably regarded on account of the smooth surface and clean appearance it presents as compared with salt glaze ware. I have already mentioned that it differs from the latter chiefly in the manner in which the glaze is applied, the one ware being fired at very much the same temperature and having the same characteristics as the other. It is needless to describe the whole process of manufacture, as certain of the early stages can be seen in operation in the machinery shed. When an object is dry and ready for firing, it is dipped in or painted over with the glaze, then removed to the kiln and burnt, the flame not being allowed to play directly upon it, as in the case of salt glaze-ware. The purposes to which this ware is devoted are too well known to require explanation here, added to which they are so multitudinous and miscellaneous as to make it a serious catalogue to undertake in the limits of a short paper. I will, therefore, merely state that jugs, jars, pitchers, and bottles of every description are usually made of it, as also occasionally are sinks, drain pipes, sewer invert blocks, etc.

rro-metallic re.

The terro-metallic or blue Staffordshire ware is of comparatively

recent introduction. It is made of a clay very highly impregnated with iron, is burnt at a high temperature, and becomes when burnt vitreous, hard, and very durable. It is therefore particularly well suited to the purposes to which it is usually applied, such as pavements for roads, footpaths, workshops, stables, etc., plinths, copings, tiles, channel courses, and other objects. This ware is unglazed.

Notices of exhibitors.

Having thus briefly discussed the principal applications of the ware, it now only remains for me to notice the leading objects, or groups of objects, contributed by the various exhibitors.

Mr. Bailey exhibits some samples of well-made chemical ware of a highly vitreous and durable body, consisting of acid tanks, retorts, receivers, condensing worms, and other vessels. He sends one or two specimens of sewer pipes, well burnt, and of dense body. His contribution of Bristol ware, for excellence of make, glaze, and colour, is equal to any exhibited, and comprises, among many other things, an ingenious ascension filter, in which, by a certain arrangement of stoneware discs in the interior, the water is more exposed to the filtering material than in ordinary filters. A churn, entirely constructed of stoneware, by this exhibitor, is also well worth notice; it is stated to be exceedingly rapid in its action.

Mr. Bourne sends a small but excellent collection of salt-glaze and Bristol ware, consisting of bottles, jars, jugs, telegraph wire insulators, etc.

Messrs. Cliff & Son send an oval sewer-pipe, the only specimen of this shape exhibited, the difficulty of production, and the expense of its manufacture precluding its frequent use; added to which the flow of sewage through well-made stoneware is so free that the egg-shape is found unnecessary. They further show a capped sewer pipe having an elliptically-shaped cap, covering a similar shaped opening in the centre of each pipe; this pipe admits of being easily inspected and cleaned, and also allows of junctions being very readily effected, a junction cap being simply substituted for a plain one. A very fine manger and sink are also exhibited by this firm, remarkable for their solidity of construction and strength.

Messrs. Doulton & Co. send the largest and most important collection of chemical and sanitary ware in the Exhibition. In the former class, among other objects, they exhibit some very fine acid tanks of large size, retorts, condensing worms, receivers, etc., and two magnificent acid force pumps, which, as specimens of perfect manufacture, are unsurpassed by anything in the class. They also send some fine specimens of taps, commencing from the fraction of an inch and extending up to nine inches in diameter, and a large pipe four feet in diameter, constructed not for sewage purposes, but for the storage of muriatic acid, the pipes being built one upon another into towers for the purpose.

Notices of exhibitors.

Among the most remarkable objects in sanitary ware are their street gullies, which, being formed in one piece, have no liability to leak, a not uncommon fault of those constructed in brick: their "opercular" or lidded pipes, planned to afford easy inspection; and their fitments adapted for the use of sewage irrigation farms, consisting of main and branch carriers, overflow-pipes, sluice valves, etc. They also, amid a numerous and excellent collection of pipes, bends, syphons, double and single junctions, etc., exhibit two specimens of sewer pipes, interesting as being made from the local clays of St. Helens, Lancashire, and Rowley Regis, in Staffordshire; these pipes, though rough in appearance, seem well burnt, hard, and durable. The specimen from St. Helens is also noticeable as being the largest size (30 inch diameter) made by machinery, pipes above that size being made by hand on the wheel.

Their Bristol ware, of which they make a good show, includes an exceedingly fine sink, of a pattern and size similar to some now being made for the newly-erected St. Thomas's Hospital, and a collection consisting of filters (some of them of excellent and novel design), jugs, bottles, telegraph insulators, and other objects too numerous to mention. They also send a small quantity of blue Staffordshire ware, which appears to be well and thoroughly burnt, the most noticeable objects being some fine blocks for the copings of walls and railway platforms, and some channel courses.

The Kinson Pottery Company show a small collection of sewer and drain pipes of various shapes and of good make.

Mr. John Knowles contributes some sewer pipes of an exceedingly vitreous body, remarkable also for their very lustrous glaze. These objects are, in their class, among the best in the Exhibition.

Messrs. Standing & Marten exhibit some capped drain pipes, the cap being over the joint; they, like others of this class, admit of being easily inspected and cleaned, and have been carefully and well manufactured.

Messrs. Stiff & Sons exhibit some acid tanks, of a very vitreous body. In sanitary fitments they show a particularly well-made chair and saddle-pipe, possessing the usual advangtages of being readily examined and cleaned; also a hospital chest, with water-lute cover. In Bristol ware they show some excellent jugs, bottles, and sinks, and some interesting and well-executed models of acid tanks and receivers, filters, etc.

Specimens of sanitary and Bristol ware are also sent by Messrs. E. Brooke, W. T. Holland, Frederick Grosvenor, the Farnley Iron Company, Lindsay & Anderson, and others, while Mr. Peake sends a few specimens of terro-metallic ware, consisting of floor, roof, and ridge tiles.

Fine Art as applied to common stoneware.

The application of Fine Art to common stoneware had, until very recently, declined to a low ebb. To convince one's self that it had at one time been applied to this ware with perfect success, it is only necessary to glance at the old works of the Flemish and German potteries, or even at the early English works of De Witt, the founder of the Fulham Pottery. It is difficult to assign exact or satisfactory reasons for this decline; but it is probably, among several other causes, owing—

Firstly, to the ware having almost entirely gone out of fashion, when it was superseded by oriental porcelain and the finer kinds of pottery for ornamental purposes.

Secondly, to the small scope there is for the display of Fine Art, the manufacture being at the present day essentially a practical one.

Thirdly, to the fact that its use at the present time, in all such articles where art could be applied, is almost exclusively confined to the poorer and more uneducated classes, and, therefore, to the very classes whence the least appreciation of art can be expected.

There are, however, symptoms of a partial revival of public taste, due doubtless, in no small measure, to the establishment of art classes thoughout the country; still, even now, objects totally devoid of art, or even good taste, command a far larger market than those possessing artistic qualities. I might cite, as an example of this, that the old hunting jug, more familiarly known as the "Toby" jug, with its meaningless and grotesque decorations of horses, hounds, windmills, trees, and smoking men, sells tenfold, while a jug of a really artistic shape and simple ornament, will hardly find a purchaser.

Few colours obtainable.

One of the great difficulties which the manufacturer has to contend with in the application of fine art, is the hitherto insurmountable one of discovering colours which will withstand at the same time both the action of the salt and the intense heat at which the ware is fired, hardly any of the colours which are used with such good effect in the Staffordshire potteries being found equal to it; and it is only by the employment of one or two metallic oxides, notably of chromium and cobalt, that any good results can be obtained, and even these are of the most subdued description only. This being the case, it is evident that shape or form must always—or at all events until the difficulty of colour is overcome—be the chief medium for the display of the artist's invention and taste.

Messrs. Doulton & Co.'s case.

In the face of these combined obstacles—want of public patronage, and difficulties of manufacture—much credit is due

to Messrs. Doulton & Co. for the lead they have taken in endeavouring to re-introduce a more artistic class of ware in point of form, colour, and decoration I have much pleasure, therefore, in directing particular attention to their very admirable case (Room No. 14) of vases, jugs, mugs, etc., which are deserving of more than a passing notice. The decorations are generally either in relief, impressed, graved, moulded, or combinations of the foregoing; and it will be observed that the principle of form alone being the guiding ornament, has been fully recognised throughout. Several of the objects are imitations, though not copies, of the old Grès de Flandres.

Worthy also of mention, on account of their novelty, are wares with coloured bodies, examples of which may be seen in some small brown jugs and vases called "claret" stoneware. This colour has been obtained by the oxide of chromium, and is green when put in the kiln—an illustration of the curious behaviour of colour when exposed to intense heat. Another example of this coloured ware may be seen in a small mug of a French grey colour—not unlike the Wedgwood jasper ware—which has been obtained by the admixture of the oxide of cobalt.

Some pleasing specimens may also be seen of a simple but effective mode of decoration, obtained by tracing or sketching on the clay itself. The operation is performed when the object is nearly dry, by means of a stiletto, or needle, the colour, oxide of cobalt, being then applied with a fine brush.

Messrs. Stiff & Co.'s jugs.

Before quitting this portion of my subject, I must not omit to mention a small collection of jugs, sent by Messrs. Stiff & Sons remarkable for their pure and artistic shape, but unornamented.

Retrospect.

Regarding the Stoneware Exhibition as a whole, it may be noticed, and probably with some regret, that no examples are contributed from abroad, the only exception—to prove the rule—being a small acid jar from Belgium, which, being composed of fire-clay, though burnt to a vitreous state, has found a home among the fire-clay goods. It will also be observed that by far the larger portion of the collection (certainly four-fifths) is contributed by London houses, the country firms, among which may be numbered some of our best, remaining practically almost unrepresented.

For this reason, therefore, the Exhibition cannot be considered a perfectly adequate representation of the stoneware of the country; but it may be safely affirmed that it is, on the whole, of very great merit, while many of the objects are of unusual excellence, and show signs of marked and important advance in the manufacture.

REPORT ON TERRA-COTTA, BRICKS,

AND

ENCAUSTIC AND OTHER TILES

In the International Exhibition of 1871.

By GILBERT R. REDGRAVE, Esq.

The antiquity of the use of clay.

WHETHER we explore the fertile basins of the Nile and the Euphrates, the cradles of our most ancient civilisation, or examine the modern rude utensils of the savage, we everywhere find numerous evidences of the use of clay by the potter. Clay, which abounds on the banks of every great river, and lines the surface of nearly every plain and sea bottom, has been employed not only for vessels, but for structural purposes, from the most remote periods, and from the date of the building of Babel until the present day, has, in nearly every country, been utilised in some form by the builder.

Its composition

This clay, so universal in its distribution and so time-honoured in its application, is not all alike suited to the purposes of the potter. Pure clay, which is, chemically, hydrous bisilicate of alumina, contains about forty-seven parts by weight of silica, forty parts of alumina, and thirteen parts of water, per hundred parts, and in this form known as "kaolin," is of comparatively rare occurrence in nature. Some of the clays which are found in the plastic beds of Devon and Dorset, and in the coal measures technically known as "fire-clays," and largely used for terra-cotta, are also extremely pure, but contain larger proportions of silica; while the clay deposits of the more recent formations, containing varying percentages of oxide of iron and manganese, carbonate of lime, magnesia, and the alkalies, are chiefly used in the preparation of the commoner kinds of bricks and tiles.

Clay used structurally.

As it is our object in the present Report to deal only with clay used structurally in the form of bricks, tiles, and terra-cotta, we have little need of investigating the composition and characteristics of the finer qualities of potters' clay; and we will now proceed, after a few general remarks, to examine the objects in the Exhibition, pointing out such peculiarities in the processes of manufacture, and of the materials employed, as appear to us to need comment.

Former reports.

From a brief inspection of the reports of the previous London Exhibitions of 1851 and 1862, and of that prepared by Mr. Henry Cole, C.B., on the terra-cotta shown at Paris in 1867, it would appear that, in the number of exhibitors, both English and foreign, this Exhibition is fully equal to the former ones, and we may assume that it is fairly representative of the present state of our structural ceramic manufactures. We miss, however, several prominent names, and the principal firms of the Leeds, Glasgow, and Newcastle fire-clay districts are conspicuously absent.

Arrangement.

The intention of the Commissioners to avoid the separation of the objects exhibited into distinct countries and districts has, we think, been better carried out in Class VIII. than in any other, and we shall, therefore, take the various objects together as we find them, without dividing the English from the foreign, or the red ware from the white terra-cotta.

Difference between bricks and terra-cotta.

We are here, even at the outset of our task, confronted with the difficulty of distinguishing between bricks and terra-cotta—a very vexed question—which many would solve by declaring that terra-cotta is a vitrified brick. We wish that this distinction would hold good, and that we could admit that all the terra-cotta was thoroughly vitrified throughout. Unfortunately, to speak of terra-cotta as a vitrified material, is in the case of nine-tenths of the ware in the Exhibition a misnomer. It is rare, indeed, to find a specimen in which any more than just the surface skin has been at all fused. In the case of terra-cotta made from fire-clay in a pure state, the tendency to fuse even at the surface is very limited, while in that made from mixed clays, the amount of flux and the heat requisite to make the ware truly vitreous, is scarcely ever attained. The reasons for the more perfect fusion of the exterior of the blocks have frequently been sought after, and it has occurred to us by way of explanation, that it might perhaps be due to the drying out of the water contained in the clay, which is said, in its green state to "sweat." This water may frequently dissolve or contain in solution minute quantities of lime or alkali, which, as it evaporated, would be distributed over the surface, in the form of a thin coating or

film. If this film is left intact it would tend, in the firing, to run the silica in the clay to a greater extent on the exterior than in those parts of the terra-cotta where this deposit is absent. If there is any truth in this theory, manufacturers ought to be careful how they meddle with the ware after it has dried, as this natural process of producing a hard surface undoubtedly tends to preserve the terra-cotta from decay, and to make it non-porous and durable. Another point in connection with this may also here be noticed—namely, the danger of removing from the burnt ware this vitrified surface. We have frequently seen masons hard at work in chipping away and rubbing down a lumpy or projecting joint in order to carry a true arris, and we have invariably noticed that, in a year or two, the portions of the work which had been thus tampered with have become just as black and discoloured as stone would have done, and, by admitting the soot and damp, were in a fair way to ruin the terra-cotta. Difference between bricks and terra-cotta.

Perhaps the chief difficulty with which the manufacturer of terra-cotta has to deal is the contraction of the clay. Pure fire-clay shrinks, between the time of moulding and final firing, as much as 1½ inches in the foot, or one-eighth lineally. Of this shrinkage, about one-half takes place in the green state, and the other half in the firing. The drying process is, perhaps, the most critical in the whole period of manufacture. If this operation is conducted too quickly, or if the ware is uneven in thickness, it frequently twists and becomes distorted, or it splits open and produces cracks which it is impossible to stop or conceal so as to stand the subsequent firing. Mixed clays shrink rather less than fire-clay—about one-twelfth of their lineal dimensions. This is perhaps owing to their more complete amalgamation, and to an increased density, due to the incorporation of two or more differently-constituted substances. Shrinkage.

Red clays, *i.e.*, clays which burn to a red tint, receive their colour from oxide of iron, which exists in them, generally in the form of the sesquioxide. This iron, when it amounts to eight or ten per cent. of the clay, frequently stains it of a red colour, and renders it very fusible and difficult to burn. Manufacturers have, therefore, to be very careful to regulate the heat of their kilns; and objects made from red clay cannot compete in hardness and durability with those made from the purer and more refractory white clays. To obviate this difficulty, some manufacturers stain their white clays with iron; and if this is done judiciously, a good colour may frequently be obtained, and one which bears heat well; the fusibility of the native red clays being generally greatly increased by the presence of the other impurities we have mentioned, consisting of lime, magnesia, and small quantities of potash and soda. Red terra-cotta.

The red clays, owing to the closeness of their body and the tendency of some of their constituents to expand rather than contract under firing, rarely decrease more than $\frac{1}{32}\sigma$ to $\frac{1}{31}\sigma$ lineally in the process of manufacture. Of course, this is partly due also to the comparatively low temperature at which the firing is conducted.

Method of overcoming the shrinkage.

To overcome these difficulties of shrinkage, it is usual to mix with the clay certain proportions of refractory substances, such as crushed pottery ware, or, with some clays, sand; as much as twenty per cent. of these materials being not unfrequently used. The danger of mixing in with the clays varying proportions of foreign ingredients lies in the habitual carelessness of workmen, who, unless they are constantly looked after, get into the habit of making these mixtures by guess-work, and thus causing, from time to time, considerable variations in the amount of shrinkage. Of course, where the terra-cotta is compounded from a mixture of several clays, the element of danger from this source is still further increased; but we obtain very frequently in this way a much more carefully prepared body, owing to the necessity that then exists for thoroughly incorporating the various ingredients.

Use of fire-clay for terra-cotta.

With such a refractory and pure material to deal with as fire-clay, the manufacturer who makes his terra-cotta from this substance is often led into great slovenliness in preparing it for use. Thus, $\frac{9}{10}\sigma$ of the fire-clay terra-cotta is merely made from clay picked as to colour, to see that it is free from particles of grit and ironstone, which, after admixture with a certain proportion of "grog" (previously burnt ware), is ground under an edge runner, pugged generally with hot water, and used at once. The resulting terra-cotta, when it is properly burnt, is excellent in surface, texture, and colour, but appears ragged and porous directly the outer skin is removed, and manifestly suffers from the want of a small proportion of some flux, such as is obtained from the lime and alkalies in the mixed clays.

Use of thin coatings of finer clays.

We may here speak of a practice which has come under our notice, and which, we trust, is confined to foreign manufacturers—namely, that of overlaying a coarsely-prepared, common body with a thin, external coating of a finer and more expensive clay. Unless these two bodies have been most carefully tested and assimilated in their contraction and expansion, they are sure, in course of time, to destroy one another—that is, the inequality in their shrinkage will cause hair-cracks in the fine outer skin, which will inevitably retain moisture and cause the surface layer to drop off in scales after the winter frosts. This we have actually observed to be taking place in more than one large building abroad.

Use of colouring mattter.

Another very reprehensible custom is that of coating over the clay, just before it goes into the kiln, with a thin wash of some ochreous paint, mixed with finely-ground clay, which produces a sort of artificial bloom, very pretty-looking for the first year or two after the work is executed, but sure to wear off before long, and reveal the natural colour of the materials. We could bring this fault home to some of our English manufacturers by name, but we will give them a chance of amending their ways.

Treatment of terra-cotta.

We are convinced, from a careful examination of all the terra-cotta in the Exhibition, that this material is still far from being properly understood, and a moment's consideration points out, we think, the grounds for the abuse of what is really one of the most beautiful building materials we possess. Terra-cotta was brought prominently into notice at the commencement of the present century as a substitute for stone, and it is this stone treatment which has ever stood in the way of its proper appreciation. It was called in the first instance artificial stone, lithodypyra, pyropolite, etc., and in the disguise of such grand names as these had to fight a losing battle with cement and stucco. To assimilate their ware to stone, manufacturers frequently sacrifice not only all the grace and delicacy of treatment for which the clay by its plasticity seems so admirably adapted, but they under-burn it in order to keep it light in colour, and, for the sake of imitating the granulations of stone-work, they destroy its surface and texture, and thus expose it to the risk of speedy decay. It is for this reason, too, that so many manufacturers aim after the production of blocks so large in size and so unwieldy that the cost of the terra-cotta is immensely increased, and the brick origin of the material is forgotten. It is this *brick origin* of the terra-cotta that we would impress upon our manufacturers; this should be the starting-point of all work done with baked clay. Every step which is taken away from this starting-point, and which ignores this fact, is as false in principle as it is unjust and hurtful to the best interests of terra-cotta.

The colour of terra-cotta.

Those who know this material only by means of the very common-place vases, chimney-pots, and flower-boxes, which constitute the ordinary manufacturer's stock-in-trade, will scarcely conceive the wonderful colour and the rich and beautiful relief which terra-cotta is capable of receiving when properly burnt and modelled; and it is this colour and surface treatment which we search for in the Exhibition almost, we may say, in vain. Even the comparatively pure clays of Dorset and Devon, and the best fire-clays, contain a small proportion of iron, and, by long-continued firing, this iron is more or less oxydised on the surface, and imparts to the

The colour of terra-cotta.

ware a rich yellow or buff tint. Of course much longer firing is needed to obtain the buff tint, and a far higher temperature must be reached than for the white or pale straw colour; and what with the increased expense of the fuel, the difficulty of insuring uniformity of tint, and the danger of unequal and excessive contraction, manufacturers are very shy of the rich coloured terra-cotta. For our own part, we do not care to see terra-cotta too uniform in tint or too regular in appearance. The play of colour in adjacent blocks, if not too marked, is, we think, rather an advantage than otherwise, and a slight unevenness in the lines of the string-courses and mouldings serves at once to distinguish between this material and stone, and to give it a character of its own.

Messrs. Doulton.

Having thus, in general terms, indicated our views upon terra-cotta, we may pass on to notice the works of individual exhibitors. First, in point of excellence and number, are the objects contributed by Messrs. Doulton & Co., of Lambeth, whose works, situated as they are in the heart of London, must have forced them to compete under most disadvantageous circumstances with manufacturers in localities where both coal and clay are cheap. Messrs. Doulton do not seem to hesitate about the size of the pieces they undertake, as many of the objects they exhibit are truly colossal, when one comes to consider the difficulties which such objects entail. The cumbrous moulds, the time required for drying, the moving in and out from the kiln, and the chance of some flaw spoiling the whole work, are all serious considerations in dealing with such large pieces, and we must give Messrs. Doulton great credit for their success in overcoming all these technical difficulties. The prevailing tint of the ware shown by this firm is rather too pale, and their designs for trusses, caps, and brackets are rather antiquated. This does not apply, however, to all their work, for we find some finely modelled roundels by students of the Lambeth Schools, and some well-treated architectural enrichments. The fountain shown by Messrs. Doulton, which, for want of room in the Arcade, has been erected in the garden, near the Brick Machinery Annexe, is a good example of this class of work. We must confess, however, that we do not quite like to see terra-cotta used for large pieces of statuary or ornamental objects, where it only serves as a cheap substitute for stone or marble.

Messrs. J. Stiff & Sons.

Messrs. J. Stiff & Sons, another Lambeth firm, send numerous examples of the uses of terra-cotta chimney pots (called in the North chimney cans), vases, rather too cast-iron-like in treatment, garden edgings, and a large collection of arch blocks inlaid with clays of various colours. This firm seems to aim chiefly after utility, and

may be congratulated on the general excellence of its goods. The coloured inlays they send make a great show; we presume they are produced by staining the white bodies, which are then run into cavities formed for them in the clay. Some vases, sent by Messrs Stiff, are noticeable from having *appliqué* enrichments in red clay on a white ground, a form of decoration which admits of very good effect, but which gives rise to many difficulties, on account of the difference in the contraction of the two clays. Messrs. J. Stiff & Sons.

We do not find anything among Mr. James Pulham's contributions to beat the Mulready monument he exhibited at the Paris Exhibition in 1867. He shows this time a goodly collection of vases and ornaments, an excellent window, and a well-designed cornice, in which some red terra-cotta is introduced with very good effect. He has also some fluted columns and ashlar work, a pier or gatepost, in which bands of red and white ware are used alternately. A well-modelled fountain, and numerous smaller objects, serve to show for what a variety of purposes this material can be employed. Mr. J. Pulham.

The Watcombe Terra-cotta Clay Company also send specimens of their beautiful material treated in all sorts of ways—made into vases and busts, trusses and balusters, and the most delicate flowers and basket-work, many of which deserve the first place in point of quality and excellence. We do not quite like the colour of this clay, but in this respect all red clay nearly is alike. It is rare indeed to find a clay which will burn to a deep plum colour, such as the Fareham brick, and burn hard at the same time. The Watcombe clay is some of it not enough burnt; the point of a knife will scratch it, which is not the case with the foreign red terra-cotta. We invariably pronounce ware which will not stand this test unsuitable for out of door use. There is no doubt, however, that this clay is beautiful in texture, and perhaps, with a little more firing, it would satisfy us on this other point: the surface of some of the balusters and turned work seems almost polished, it is so close grained and satin-like in appearance. The Watcomb Company.

The only other prominent exhibitors of red terra-cotta are Messrs. E. March & Sons, of Berlin, and Signor Boni, of Milan. The former firm sends numerous specimens both of the white and red material. The red terra-cotta has been extensively used in Berlin, as is proved by the large collection they show here of photographs of executed works, and the colour and quality are decidedly better than most of the red ware which has come under our notice. We are not certain that Signor Boni's red terra-cotta will stand well out of doors; some of it was already decaying fast when we were Messrs. E. March & Sons. Signor Boni.

in Milan a year or two ago. He exhibits this time only statuary, and, therefore, his goods hardly come into our province, which is also the case with the objects sent by Messrs. Lindsay & Anderson. The ware seems fairly well burned, and is very uniform in colour, even in the largest pieces.

Messrs. Gibbs & Canning.

Messrs. Gibbs & Canning, of Tamworth, do not make a large display. We presume that they consider that the Arcades of the Gardens and the Royal Albert Hall will show what they are capable of. The tint of their goods is extremely pleasant, and they exhibit several specimens of enamelled terra-cotta or Della Robbia ware, which promises well as a cheap substitute for majolica. They send also some hollow hexagonal blocks for filling in the spandrils of vaulting, which seem good. They were designed some years ago by Mr. Hansom, and are now being largely used at Manchester.

M. Brausewetter.

Some of the best terra-cotta in the Exhibition, both in colour and manufacture, is that shown by M. V. Brausewetter, of Wagram, Austria. Particularly good is a Roman Ionic capital, and some mouldings, with classic enrichment, exhibited by this firm.

Mr. J. Knowles.

Mr. J. Knowles, of Wooden-Box, sends some rather coarsely made, but useful Gothic tracery, and a large assortment of chimney-pots. These goods, made from the Derbyshire fire-clay, have received rather more firing than much of the terra-cotta shown here.

Messrs. Blanchard.

Messrs. M. H. Blanchard & Co., of the Blackfriars Road, have also done so much work at South Kensington that they do not go out of their way to make a display in the Exhibition. They send a portion of the cornice for the Wedgwood Memorial Institute at Burslem, but it is mounted up so high that we could scarcely see it. The modelling is good, but the ware is all of one colour, and gave us rather the impression of having received a coat of distemper. The column modelled by Mr. Godfrey Sykes for the new Lecture Theatre at the South Kensington Museum, and shown by this firm, is an excellent example of vigorous work in this material; and the column for the Horticultural Arcade, and the two large blocks for the cornices of the Science Schools, serve to show what good work is being done at South Kensington towards establishing a proper treatment of terra-cotta.

Mr. W. J. Holland.

Mr. W. J. Holland, of Llanelly, sends a number of trusses, balusters and vases, which are most of them very bleached and colourless; he has, however, some very commendable diapered blocks, made in pieces of about a foot square, which would serve as an agreeable substitute for plastering.

Messrs. Standing & Marten have here some arch blocks, and a string-course of no particular merit. Messrs. Standing & Marten.

Mr. G. Smith, of Coalville, makes a great show of his so-called glypto terra-cotta, which is very bilious in colour, and seems to have had all its surface scraped off. His mouldings and shafts are, however, wonderfully true and accurate in shape, and very like stone, which is evidently all that he aims at; we have already pointed out the errors of manufacturers in this respect, and we need not again repeat our views upon the subject. Mr. Smith's ware is so coarse-grained in texture, that we are convinced that it could not fail to retain the soot and dirt, and would get discoloured as fast as the most porous kinds of stone. Mr. G. Smith.

Mr. C. J. C. Bailey, of Fulham, sends a few specimens of what he calls porous ware, and some gas stoves of terra-cotta; the advantages he claims for such stoves is, that after the fire-clay of which they are mainly composed has once got well heated, it will radiate much more warmth than a small metal stove. Mr. C. J. C. Bailey.

Scattered about the Exhibition we noticed several specimens of foreign terra-cotta, most of which have been lent by the authorities of the South Kensington Museum, and from the fact that they have been reported upon in connection with former Exhibitions, they scarcely require notice now. There are also several specimens of works in Portland cement, which do not come under this year's classification, and some foreign marbles and building stones. Foreign works lent by the South Kensington Museum.

The display of bricks is unusually good, and the trade is very fairly represented. Both in colour and quality the specimens shown by Messrs. R. & N. Norman, of St. John's, Hurstpierpoint, deserve our highest praise; the designs are good, and the bricks evenly burnt and uniform in tint. We must particularly commend a piece of tracery, a portion of an enriched moulding, and some arch bricks exhibited by them, and point out the rich plum colour of the first mentioned objects as specially worthy of imitation by those engaged in the manufacture of red ware. Bricks: Messrs. Norman

Mr. George Gunton, of Cossey, near Norwich, has some capital red bricks, likewise very rich in colour and admirably moulded. He exhibits an entire chimney shaft of brickwork of an interlacing pattern, several varieties of chimney bricks, some panels of large size in red clay, an excellent balustrade in white clay, and a smaller one in red. This material seems particularly suitable for moulded work Mr. G. Gunton.

Mr. Pether.

The gault clay is made use of by Mr. Pether for his patent diaper bricks; the idea of stamping on the face of the brick a pattern, or a portion of a pattern so arranged, that in building up the work in ordinary bond, the bricks may work together into a simple diaper is an excellent one, and has been well carried out by Mr. Pether. We have here numerous designs which need only be regarded as suggestive of what may be done, for we understand that the firm will make any pattern which may be desired. The Burham Company exhibit, near the Brick-machinery Annexe, an arch of these patent bricks, which has a very good effect. They can make them both in white and red, but the latter colour is capable of improvement; in fact all the colours shown are dingy, owing to the difficulty there is in staining so strong a clay as the gault.

Suffolk and gault bricks.

The Suffolk whites differ essentially from the gault bricks, in having a much larger admixture of silicious matter—of course, as both these kinds of brick are made from the clays of the cretaceous formation, the colouring matter in each case is chalk. In the case of the gault bricks the toughness and strength of the clay is not materially reduced before tempering by the use of sand, and the lime and silica being present in fusible proportions, tend in firing to partially vitrify the body; these bricks are, therefore, extremely hard, and at the same time brittle and difficult to cut. The Suffolk bricks, on the other hand, are so opened-grained and full of sand, that they can readily be carved and rubbed into any requisite form, and are on this account in great demand for rubbers. The quantity of sand in a Suffolk brick is sometimes so great that one wonders how they can hold together with so small a proportion of cementing material, but from the fact that the Suffolk bricks undoubtedly harden in the course of time in the work, it is possible that some of the clay may combine gradually with the lime to form silicates in the wet way, and thus join the particles of sand.

Limey clays.

We may mention here that the impure red clays of the Nottingham and Leicester district, which contain large proportions of carbonate of lime, and in some cases sulphate of lime, present in the form of crystals of selenite, frequently occasion great difficulties to brickmakers, owing to the imperfect distribution of this lime through the mass in the process of tempering. Unless the lumps of limestone or the crystals are thoroughly broken up and intermingled with the clay, we get in both cases materials in the burnt brick, which, on the addition of water swell up and heat, and occasionally cause the disruption of the entire mass. Some

Mr. Tucker.

good serviceable red bricks, however, from this district, exhibited by Mr. G. Tucker, of Loughborough, are free from this defect,

Gault bricks.

A wonderfully tough and durable brick is made from the gault, which, owing to the density of the clay, however, is apt to be rather weighty. This has been in some cases overcome by making a large frog or filling the brick with small perforations. The latter plan increases the adhesion of the joints and reduces the weight, without materially impairing the strength of the brick, and might, we think, be adopted with advantage in the case of all tough and dense clays. Gault bricks are shown by the Medway Gault Brick Company and the Burham Company.

Suffolk bricks.

The Suffolk makers have a fair show. The white rubbers fully maintain their high reputation. The red Suffolk bricks are almost without exception dingy and dirty in colour. The chief makers of Suffolk bricks or bricks of similar quality who have contributed to this Exhibition are—the Great Northern Brick Company, Arsley, Beds; Messrs. E. & E. C. Gibbons, of Ipswich; and Messrs. Wheeler Bros., of Coley Kilns.

Mr. B. Looker.

Mr. B. Looker, of Kingston, has some capital moulded bricks and arch bricks of various colours, and some ingenious arrangements of tiles for the formation of simple forcing frames and glass covers for flowers and vegetables. By combining notched or grooved tiles and glass he provides, at a trifling cost, a means of protecting delicate plants from the weather, and puts it within the power of the humblest cottage gardener to cultivate those less hardy fruits and vegetables which have hitherto been confined to the gardens of the wealthy. He has a large show of different varieties of his frames in an extemporised garden near the Brick Machinery Annexe. Forcing frames, somewhat similar in construction, are also sent by Mr. W. E. Rendle.

Terra-cotta bricks.

Terra-cotta bricks, of good quality and of several stained colours, are shown by Mr. Davison, of Egton, Yorkshire, and admirable facing bricks of glypto terra-cotta, by Mr. George Smith, of Coalville.

Rubbed bricks: Mr. Cawte.

Much as we admire it, we cannot help considering rubbed brickwork to be false in principle. There is no doubt that rubbing has been resorted to in some of the most beautiful work which we possess; and we must admit the new buildings at South Kensington are most excellent examples of the judicious employment of red bricks. But we are convinced that as bricks are necessarily moulded in the process of manufacture, it is a mistake to tamper with and shape them after they leave the kiln. It is really doing the work twice over to cut them into fantastic shapes, as has been done in the window shown by Mr. Wm. Cawte, of Fareham, when they might

Rubbed bricks: Mr. Cawte.

have received these forms in a quarter of the time while the clay was in the plastic state. Besides, mortar joints are on no account to be despised, and "improved" down to the thickness of a mere sheet of paper, as we see here. We should say, by all means use the brick with the natural surface it receives in firing, and give it a plain, honest bed of mortar. This has been done in the Albert Hall and in the new Exhibition buildings, and we venture to assert that the effect with grey mortar is better than the rubbed work at the Museum, which looks as if the joints had been ruled on with a drawing-pen. The colour of Mr. Cawte's bricks is admirable, and the work here shown, a small two-light window, with very heavy mouldings, is most excellent.

Glazed bricks: Farnley Company. Messrs. Cliff. Messrs. Hall.

Enamelled or glazed bricks and tiles are shown by the Farnley Iron Company, Leeds, Messrs. J. Cliff & Son, of Wortley, near Leeds, and Messrs. John Hall & Co., of Stourbridge. Bricks of this kind are used for lining the walls of lighting-shafts, and for the interior of butchers' shops, dairies, and other places where great cleanliness is required. The white glaze is obtained in two ways by different makers. Some put over the clay a thin coating of white body and protect this with a transparent fritted glaze, while others employ an opaque enamel-glaze, such as is used for majolica ware. With some fire-clays there is considerable difficulty in causing the adhesion of a white body, and glazed bricks thus made are apt to scale. We have frequently seen patches as large as a crown piece which have dropped off, leaving the yellow colour of the brick exposed. Both the Leeds firms show the glazed bricks in various colours, some of which are very effective. The Farnley Company have some salt-glazed bricks, which are very pleasant in tint, and would do well for lining stables. They send also some large glazed slabs. The bricks shown by Messrs. Hall are not so good in colour as the rest. They appear to have been made by using a stained glaze over a white body. As a large piece of successfully-glazed terra-cotta we may mention Mr. Finch's bath, although it hardly comes within our province. These baths are made at Stourbridge, and are burnt in an ordinary brick-kiln, and coated with the white body and glaze, all in one firing. The colour and texture of the surface much resembles the white glazed bricks shown by Messrs. Hall.

Finch's bath.

Blue bricks.

The surface clays of Staffordshire are largely impregnated with iron, and advantage has been taken of this to produce the well-known blue ware which is chiefly made in this and the neighbouring counties. The production of this material from ferruginous clays depends principally on a nicety, or better a *trick* of firing, and though there are doubtless numerous beds of clay equally well

adapted for the manufacture of blue bricks in other parts of the country, we are not aware that they are made except in this particular district. By burning the clays at moderate temperatures, in the presence of a plentiful supply of atmospheric air, a good hard red body is obtained; by carrying the heat slightly further, checking the in-draught into the oven or kiln of the air, and creating large volumes of smoke towards the latter part of the firing process, the iron in the clay is reduced from the condition of the red oxide to that of the magnetic or black oxide, and gives, when the operation is properly conducted, a beautiful blue silvery look to the goods. The knack of obtaining the blue colour in perfection is a secret of a few firemen, and the writer has on more than one occasion spent a whole night in learning the precise details. Suffice it here to say that the best results are obtained by bringing up the heat by what is called a series of "pinches," *i.e.*, letting the fires down very low in the "mouths," and then adding heavy charges of fuel. Unless the stoking of the kiln is very carefully managed, a dull, purple-blue, without a trace of lustre, is frequently attained, owing, doubtless, to a partial return of the iron to the condition of the peroxide; or the top and bottom of the kiln may blue at so long an interval apart, that in firing for the bottom after the top is finished, the tiles and lighter goods in the upper part may become partially fused, and run together, which is very readily done as the blue clay is melted into a black slag at china biscuit heat; or, lastly, the kiln may get "stored up," *i.e.*, the flues and passages for the smoke left between the bricks may get completely choked with soot from the dense black smoke, in which case the fires will no longer draw and the work comes to a standstill. The only remedy we know of for this latter evil is to empty a few pailsful of water down the chimneys, which is a very radical and generally effectual measure. Blue bricks.

There appear to be only two exhibitors of blue ware at this Exhibition. Messrs. Peake, of Tunstall, call their goods terro-metallic ware. They show a collection of flooring and roofing tiles of first-rate quality, which have been very well fired. It is rarely that blue clays are discoloured in firing for more than one-eighth of an inch beneath the surface, but we see from a broken sample that this ware is blackened all through. The hardness of blue bricks and tiles and their consequent suitabilily for pavements is well known. If we remember rightly, Westminster Bridge was paved with blue quarries, which have now, however, lost every trace of their former colour. Messrs. Peake.

Messrs. Doulton, from their works at Rowley Regis, also send Messrs. Doulton.

Messrs. Doulton.

some excellent samples of blue bricks, copings, and channel blocks, which are exceedingly true and well formed, owing to the use probably of metal moulds, and to the great care they have received in firing. Some of the tiles shown by other exhibitors have merely been coloured by an external coating of some metallic oxide, probably manganese, and we may add that by the use of an iron wash, a bastard blue brick is frequently made, which looks well for a time, but does not wear like the genuine blue goods.

Concrete building: Messrs. Parr & Strong.

The last few years have witnessed many new inventions with reference to concrete building, and the claims of rival patentees of the various machines which have been proposed for the purpose have been at times rather bewildering. We have in the Exhibition several ingenious contrivances for doing away altogether with machinery for concrete building. Thus Messrs. Parr & Strong show their patent combination, which consists of hexagonal tubes of terra-cotta filled either partially or entirely with concrete. By this means a wall, having a pleasant honey-combed appearance, is rapidly constructed without any apparatus, and the necessity for subsequent stuccoing is dispensed with. In the specimens shown we have, in the lower part, the tubes with a facing of stone which is thus protected from the damp, useful therefore for retaining walls, while above them is a mode of using the tubes in combination with concrete-blocks, but the tubes may also be used alone without any backing whatever. The blocks in this case are made of General Scott's patent selenitic mortar, and the cornice was worked by the Patent Stone Working and Tunnelling Machinery Company.

Mr. Taylor.

We have also here the facing for concrete walls invented by Mr. Taylor, of the Broomhall Company; this is a hollow terra-cotta tube, square in section, which, on being split diagonally, forms a couple of facing bricks: each course, when laid, serves as a receptacle for a fresh layer of concrete, the exterior of the wall resembling brickwork. The Broomhall Company also show the damp-proof course they have introduced, and Taylor's Patent Roofing Tiles, a cheap and light substitute for the ugly looking slates or heavy tiling in general use. To show the efficiency of their damp-course, which differs from that of other makers in having a clear air-passage through each joint, the specimen of walling shown by the Company is placed in a vessel of water. A small model is also exhibited of a method of making and laying tiles whereby a continuous air-space is formed under each tile.

Roofing tiles.

There is not a very great show of roofing tiles, but we have

no fear that this class of goods is falling into abeyance. For a long time the cheapness and lightness of slate, and the increasing facilities for its transport, bid fair to extinguish the tile trade; but, now that people have experienced the disadvantages of slate and its discomforts, they are coming round to tiles again, and manufacturers are trying to give us something better than the old-fashioned pan or plain tile. Roofing tiles.

Foremost in the excellence of their goods are Messrs. Colthurst, Symons & Co., of Bridgewater, whose corrugated roofing tile has a very neat appearance, and seems well made. This firm shows a large assortment of ridge, cresting, and other ornamental tiles, some of which are stained black with a manganese wash, and have a semi-vitreous glaze. The Broomhall Company have the tiles we have previously mentioned, invented by Mr. Taylor, which can be made in various colours; and some good, serviceable tiles are sent by Messrs. Major, of Bridgewater. Messrs. Colthurst, Symons & Co.

The show of encaustic and decorative floor and wall-tiles in the present Exhibition is most complete, and constitutes one of the most interesting features in the Ceramic Department. Few could have forseen, when Mr. Herbert Minton perfected Prosser's patent for compressing clay-powder, what an important branch of the trade this would eventually become, and what a large demand would arise in the course of a few years for the so-called encaustic tiles. The art of making inlaid tiles is by no means one of modern origin, as all who have examined our old cathedrals and churches will at once remember. Indeed, in the hands of mediæval artists, it was brought to great perfection, and the floor-tiles of the 13th and 14th centuries still remain in many of our ancient buildings in a fair state of preservation. One of the most important of the new manufactories, recently erected at Stoke-upon-Trent, has been built for the production of encaustic tiles, and we are assured that the numbers used in this country and exported abroad are enormous. Encaustic tiles.

We fail to find an exact definition for the term "encaustic," but we take it to apply to such materials as have their colours actually incorporated with the clay, and burnt in at the same time as the body of the ware. All the encaustic tiles are made from red and white clays or stained bodies, and the colours which are employed to decorate them are applied in the condition of liquid slip, or, when made from dust, in the form of a coloured powder. The so-called majolica tiles differ from the encaustic tiles in having their colour applied in the form of an enamel or coloured opaque glaze. They have not, therefore, the same amount of durability, and are only used for walls and similar ornamental purposes. A class of

Encaustic tiles.

pseudo-encaustic tiles is now being largely made in which the colour which should be burnt in along with the clay is merely applied as a transfer printed pattern on the surface. Such tiles are frequently coated in the gloss-oven with a transparent fritted glaze, and serve for flower-boxes, wall-tiles, and similar purposes. To give them the appearance of having true inlaid colours, the edges of these tiles have frequently a little colour applied to them to represent the depth of the insertion of the coloured clay.

Messrs Minton, Hollins & Company.

Messrs. Minton, Hollins & Company, of Stoke-upon-Trent, are foremost in the quantity and excellence of their goods. A branch of the art of tile making, to which they paid great attention, is the preparation of tesseræ for mosaic work, made in the same way as dust tiles, only on a much smaller scale. A noble specimen of mosaic work in this material is the frieze which surrounds the Royal Albert Hall. In this frieze the average size of the tesseræ employed is about half-an-inch square, and the surface covered is over 5,000 square feet. The ordinary flooring tiles, as used in the Exhibition, are made from powdered clay, which is prepared from slipped, dried, and ground clay put into steel moulds, and consolidated by means of a very heavy blow in a screw press, much after the fashion of a coining press. Messrs. Minion send some decorated earthenware panels, stoves, and fire-places, and some well-designed majolica wall-tiles. Their encaustic tiles require no praise from us, as the name of Minton is deservedly famed throughout the world for this class of goods. In the Upper Arcade are some admirable wall-tiles, made by stamping an impressed pattern on the surface of the tile, and then filling in the depression with colour.

Messrs. W. B. Simpson.

Perhaps the most attractive display in structural ceramic work is made by Messrs. W. B. Simpson & Sons, who have produced numerous most suggestive designs in what they have called art-tile work. A staircase, handrail, and balustrade, and adjacent wall decoration by this firm, is an admirably worked out and most effective scheme for the employment of tile work and majolica. They send also some chimney-pieces enriched with tile inlays and painted tiles, and some most commendable wall diapers and soberly-tinted specimens of majolica tile-work. Some excellent glass and other mosaics are shown by Messrs. Simpson, notably a reredos, subject, "The Lord's Supper," and a portion of the mosaic decoration for St. Paul's Cathedral.

Mr. R. M. Taylor.

Some very well-designed tiles, and some novel and effective combinations and patterns, are contributed by Mr. R. Minton Taylor, of Fenton Tile Works.

Messrs. G. Maw & Co. also make a strong show of embossed wall-tiles and majolica ceramic decorations. Some of the enriched panels they send are very good both in colour and design. Especially good also are some small diaper patterns for mural decoration, some mosaic work, and some knobs and bosses for building into walls in order to obtain colour and relief. Messrs. Maw.

The Architectural Pottery Company exhibit their mosaic and tesselated pavements. We believe that this firm introduced the idea of making tiles which represent a number of smaller ones joined together in the form of mosaic work. This, as a fancy, is all very well, but we do not quite recognise the correctness of the principle on which it is founded, nor do we like their tiles representing inlaid marbles and mosaic work, which are too much like floor-cloth to please us. The Architectural Pottery Company.

Messrs. Minton & Co. exhibit decorated tiles in imitation of encaustic tiles, for mural decoration, and some admirably-painted earthenware slabs. Messrs. Heaton, Butler & Baines send some quaint and prettily designed tiles, illustrating fairy tales. Messrs. Whetstone show some flooring tiles of good quality and design, but rather poor in colour. Minton & Co

The show of tiles from foreign countries is very poor. Some curious Portuguese wall-tiles are lent by Mr. G. Maw; these are, most of them, of the character of our enamelled majolica tiles, being first rudely modelled, and then coated with an opaque enamel colour. In some cases a series of plain tiles are put together to form pictures. Foreign tiles Portugal.

The Indian Court contains some most interesting tiles, slabs, and roofing tiles, which are not yet fully arranged, but which afford excellent examples of the use of richly coloured glazes over common clays. India.

We do not find any exhibitors in this class who come forward on the score of cheapness, and we would suggest to our manufacturers the advisability of giving us some more roughly-made tiles suitable for the cottages of the poor. The admirable tiles which are made in India, and sold at an amazingly small price, should encourage Englishmen, with the machinery and appliances they now possess, to give us something better than the cold and cheerless stone flagging, or the soft, damp, brick paving which is too frequently the only material which can be obtained for the floors of the labourer. We have now arrived at so much perfection in tile-making that we are not likely to see any further improvements of much importance. Cheap tiles.

Cheap tiles.

Now let our manufacturers turn back and see what they can do in another direction. Of course we are aware that tiles may be had at a couple of shillings per square yard, but these are badly-shaped, ill-looking articles, and we want something better than this.

We cannot terminate this Report without expressing our strong conviction that, as far as the manipulative processes are concerned, our terra-cotta and tile manufacturers have little to learn; what they now want is more originality and art power in the designs for their productions.

REPORT ON FIRE-CLAY GOODS

In the International Exhibition of 1871.

By LIEUTENANT G. E. GROVER, R.E.

Various uses of fire-clay in the different manufactures.

Of the keramic products exhibited in Class VIII. it is probable that the fire-clay goods will meet with but scanty attention. Their unattractive exterior, and scarce understood uses, will fail to excite the interest and admiration which must necessarily attach to the exquisite specimens of ornamental faïence and porcelain displayed in the adjoining galleries of the Exhibition. Yet in almost every branch of modern manufacture fire-clay plays an important part, and its various uses cause it to assume an infinite variety of forms—some of everyday use, others known only to the metallurgist. For example, may be enumerated fire-stove lumps, oven tiles, flue linings, gas retorts, baths, vases, chimney-pots, drain-pipes, boiler-seatings, fire-bricks, calcining-bars, blast-furnace tymps, smelting-crucibles, glass-house pots, seggars for baking porcelain, muffles for glass enamelling and gilding, sieges and cuvettes for plate-glass fusing. Truly, we may say with Palissy, even after our additional experience of three hundred and thirty years :—"Consider a little how many arts would be useless, if not altogether lost, without the art of treating refractory clays!"

The increase of this trade during the last thirty years.

The trade in English fire-clay goods has marvellously increased during the last thirty years. Stourbridge now manufactures 30,000,000 of fire bricks per annum instead of 14,000,000; whilst Newcastle sends out 80,000,000 in place of 7,000,000. Our export trade alone has made very considerable progress since the year 1862,

The increase of this trade during the last thirty years.

as shown in the following table compiled from the annual statistical returns of the Board of Trade :—

Year.	Fire Lumps.		Bricks of all Sorts.		Clay of all Sorts.	
	Number.	Value. £	Number.	Value. £	Number of tons.	Value. £
1862	40,178	1,903	28,834,000	60,187	54,552	69,361
1863	66,400	4,142	30,226,000	77,472	55,626	69,322
1864	80,303	3,243	28,069,000	73,532	58,856	76,511
1865	71,586	2,365	33,221,000	86,245	62,057	82,637
1866	45,294	1,971	32,906,000	87,886	71,348	95,637
1867	171,723	5,149	37,227,000	99,422	75,703	93,652
1868	40,403	1,820	34,806,000	90,004	68,739	84,654
1869	525,360	11,192	36,120,000	89,569	87,525	105,394

So that our export trade, in fire lumps alone, has increased in value nearly six-fold since the year 1862. It should be remarked, with reference to the above table, that in the annual returns by the Board of Trade, fire bricks and fire-clay are not distinguished from those intended for ordinary building purposes, and that the returns for the year 1870 have not yet been published.

The Newcastle fire-brick trade.

The striking growth of the Newcastle fire goods trade, in particular, will be understood from the following comparison of the fire brick manufacture of that district, according to a recent estimate :—

Number of Fire Bricks.	1838.	1868.
Exported	1,500,000	9,500,000
Sent to other parts of the United Kingdom ..	3,000,000	27,500,000
Consumed in the locality	2,500,000	43,000,000
Total made per annum	7,000,000	80,000,000

Thus, the growing extent and value—considered from a commercial and manufacturing point of view—of the fire goods manufacture in this country, render it well worthy of the distinct classification which it obtains, under the general head of Pottery, in the present Exhibition, wherein the objects are grouped in separate but complete classes, in contradistinction to the confusing system of arrangement according to the nationalities which has always been adopted in former international exhibitions.

The composition of clays.

Before, however, commenting upon the collection of fire-clay goods assorted together, in accordance with this principle, between

The composition of clays.

the central gallery doors in the Eastern Arcades, it may be useful to offer a few remarks upon the elementary composition of fire-clays—the raw material. Clays proper are chemical compounds occurring under different phases in numerous geological formations, and consisting of hydrated silicates of alumina, either alone or in combination with silicates of potash, soda, lime, magnesia, iron, manganese, etc. They result from the slow decomposition of feldspathic rocks by water, and they are tough and plastic—differing from mud in these respects, as well as in the absence of vegetable and animal matters. Such plasticity and tenacity of the argillaceous earths are due to the prominence of the ingredient alumina, which has a strong affinity for water, and are diminished by the presence of iron, lime, and magnesia.

Fire-clays.

Fire-clays owe their refractory, or fire-resisting properties to an absence of lime, oxide of iron, and the alkalies of magnesia, potassa, and soda. As to the first ingredient, Dr. Percy remarks in his "Metallurgy":—"The presence of a small quantity of lime uniformly diffused through a fire-clay may not be injurious, and may possibly tend to render the substance of a crucible made of such clay compact and close in grain. The presence of potassa or soda in sensible proportions in a fire-clay would certainly make it less refractory; but in the proportion in which they appear to exist in some of the best fire-clays, their effect may be beneficial rather than otherwise, by soldering, as it were, the particles firmly together." The main constituents of a fire-clay are, of course, silica and alumina, whose proportions generally average 65 and 30 per cent. respectively; the silica being a passive ingredient, acting mechanically to prevent excessive contraction, whilst the alumina forms, so to speak, the cement which binds the particles together.

The combination of their components.

Before quitting the subject of composition, which is only touched by the usual test of analysis, it should be observed that the infusibility of any substance depends not merely upon the chemical natures of its constituents, but also upon the manner in which those constituents are combined with one another. For example, granite *per se* is infusible at ordinary high temperatures, whilst pounded granite (or, in other words, a fine powder of quartz, felspar, and mica, mixed in the same proportions) can be readily melted by the same degree of heat. Thus it would seem that a porosity in structure brought about by a coarseness of elementary particles would enhance the chemical infusibility of a material, and that in fire-clay goods a close uniform structure, though pleasing to the eye, is not favourable to their

The combination of their components.

refractory powers, since the component particles should have a facility for contraction or expansion under high temperature, and the air cavities act as valuable non-conductors of heat. Hence it will be evident that, to determine accurate conclusions respecting these wares, a fire test is as essential as chemical analysis. M. Alexandre Brongniart considers it even more essential, and speaking of furnace bricks (*Traité des Arts Céramiques*, tom. 1, p. 342), he recommends the following process of test:—"Si on veut juger la qualité réfractaire d'une brique, c'est de faire un petit massif de six ou huit de ces briques sur deux rangs, et de l'exposer, un rang en avant, dans un four à porcelaine à l'entrée du feu dans le four. Le poids affaisera les inférieures si elles sont seulement ramollissables. Le rang antérieur ne doit pas entrer dans le jugement; il est toujours attaqué quelque réfractaire qu'il soit; mais il sert à garantir le rang postérieur de l'action de la potasse des cendres à la quelle la terre la plus réfractaire ne peut résister. C'est donc sur les altérations de ramollissement, de fusion, ou de boursouflement du rang postérieur qu'on peut juger la qualité réfractaire d'une brique. Aucun moyen d'analyse ou d'essai en petit ne peut suppléer à ces véritables essais techniques." Dr. Percy recommends a similar test (*Metallurgy*, p. 235), namely, that the fire-clay should be formed into small sharp-edged prisms, which, on being enclosed in a covered crucible and subjected to an extreme heat in an air-furnace, would denote a very high degree of infusibility if the edges remained sharp, an incipient fusion of the material if the edges were rounded, and a thoroughly inferior quality of the fire-clay if the prisms were melted down.

It will consequently be understood that a visual or superficial inspection is inadequate to determine exact conclusions respecting the relative merits of fire-clay goods; but careful inspection will reveal much to the practised eye, and as no other course is open to the visitors in an Exhibition, it will be proper to proceed by firstly examining the exhibited specimens of raw materials, or "green" fire-clays.

Raw materials in the Exhibition.

Conspicuous among these stands a fine lump of glass-house pot clay, measuring 5 feet 2 inches in length, and 20 inches in thickness, exhibited by the Messrs. Harris & Pearson, of Stourbridge, who also show samples of clay suitable for steel pots. Some very fine specimens of Stourbridge fire-clay, "seconds" black crucible clay, and "best" black crucible clay, are also exhibited by the Messrs. John Hall & Co., King Brothers, E. J. & J. Pearson, E. Bowen, and Harper & Moores, with which it is interesting to compare the raw material of the fire-clay goods sent by manufacturers of other distinct districts,

such as the Messrs. Martin Brothers, of Plympton, and J. Knowles, of the Burton-on-Trent district.

The Stourbridge fire-clay.

The Stourbridge fire-brick black clay, or coal-measure marl—a species of shale or slate clay—is dug from pits (whose shafts are 6 or 8 feet in diameter and steined) varying in depth from 120 to 570 feet. It is generally found below three workable coal measures, between marl or rock and an inferior clay. The former, overlying the fire-clay, is generally about 48 feet thick. The fire-clay seam averages 3 feet in thickness, never exceeding 5 feet, and thinning down to 5 or 6 inches when close to faults or small disturbances in the measures. The middle stratum of the seam is always selected for the fire-clay, the top and bottom being thought too "strong." Among Mr. John Hall's exhibits is an interesting collection of samples, in bottles, of the different classes of Stourbridge fire-clays, both raw and calcined, ground to the proper degrees of fineness required in the manufacture of the different classes of crucibles, glass-house pots, and other fire-clay goods. After being raised from the pits, the fire-clay is picked over by women, who select the best lumps or "kernels" for glass-house pots, and reject the clay with stains or mineral impurities. The pot-clay is only found in small quantities, and costs on the spot 55 shillings a ton, whereas ordinary fire-clay costs on the spot only 10 shillings a ton. It is usually estimated that 4 tons (or about $3\frac{1}{2}$ cubic yards) of clay are required to make a thousand 9-inch fire-bricks.

The Stourbridge fire-clay district, situated about 20 miles south-west of Birmingham, comprehends an area of about 8 to 9 square miles, whereon are the works of about a dozen manufacturers. For upwards of three centuries has the Stourbridge fire-clay been celebrated; and in 1566 a lease of land near the present Railway Station was granted for the purpose of getting and digging pot-clay for glass manufacture, which had been introduced into England by Huguenot refugees from Lorraine, about 10 years previously.

In Dr. Robert Plot's "Natural History of Staffordshire," published in 1686, the Stourbridge fire-clay is thus quaintly described (chap. 3, par. 24, page 121): "But the clay that surpasses all others of this *county* is that at *Amblecot*, on the banks of the *Stour*, in the parish of *Old Swynford*, yet in *Staffordshire*, in the lands of that judicious and obliging Gent. the Worshipfull *Harry Gray*, of *Enfield*, Esq., whose beautifull mansion, perhaps the best situat of any in the county, is here represented, *Tab.* 7. I say the most preferable *clay* of any is that of *Amblecot*, of a *dark blewish* colour, whereof they make the best *pots* for the *glass-houses* of any in England. Nay, so very good is it for this purpose, that it is sold on the place for sevenpence the bushell, whereof Mr. *Gray* has sixpence and the *Work-*

The Stourbridge fire-clay.

man one penny, and so very necessary to be had, that it is sent as far as *London*, sometimes by *waggon*, and sometimes by *land* to *Beaudley* and so down the *Severn* to Bristol, and thence to *London*: the goodness of which *clay*, and cheapness of *coal* hereabout, no doubt, has drawn the *glass-houses*, both for *vessells* and *broad glass*, into these parts, there being divers set up in different formes, here at *Amblecot*, *Old Swynford*, *Holloway's-end* and *Cobourn-brook*."

The varying composition of the Stourbridge fire-clays will be understood from the following list of percentages of their three most important constituents in fire-bricks, recently analysed by Mr. F. A. Abel, F.R.S., Chemist to the War Department :—

Sample.	Silica.	Alumina.	Peroxide of iron.	Alkalies, waste, etc.
1.	66·47	26·26	6·63	·64
2.	65·65	26·59	5·71	2·05
3.	65·50	27·35	5.40	1·75
4.	67·00	25·80	4·90	2.30
5.	63·42	31·20	4·70	·68
6.	65·08	27·39	3·98	3·55
7.	65·21	27·82	3·41	3·56
8.	58·48	35·78	3·02	2·72
9.	63·40	31·70	3·00	1·90

It is needless to remark that the small quantity of iron in Sample No. 9 makes it highly superior to No. 1, whose refractory properties might be questioned, in consideration of the large percentage of iron which it contains.

Stourbridge is well represented in the present Exhibition by the firms of Harris & Pearson, Harper & Moores, J. Hall & Co., E. J. & J. Pearson, King Brothers, and E. Bowen & Co., whose fire-bricks, crucibles, and gas retorts are well worthy of careful inspection. In each collection the fractured surfaces of a fire-brick broken transversely shows the texture or grain of the material. The iron may be discerned (with great difficulty, it must be confessed, in these beautiful Exhibition bricks) in the few small, black specks embedded in the mass. The dark red particles, noticeable in one or two cases, denote the "grogg" or re-ground crucibles, bricks, etc., added to the clay before grinding.

Process of Stourbridge fire-brick manufacture.

The process of fire-brick manufacture at Stourbridge is thus performed. The clay is firstly exposed in spoil heaps, over as large an area as can be secured, for from 3 to 18 months, according to the state of the weather. The action of frost, as with ordinary brick earth, is of great service in disintegrating the compact tough

Process of Stourbridge fire-brick manufacture

lumps of clay, and in dry weather the clay is frequently watered. In very wet weather a three months' exposure will suffice for its proper "mellowing" or "ripening," and it ultimately slacks and falls to pieces. When new, it is termed, in the local phraseology, "short and rough;" after due exposure it becomes "mild and tough." On some of the works the spoil heaps of clay contain over 10,000 tons, and it is estimated that 7 tons measure about 6 cubic yards.

After sufficient weathering, the clay is ground in a circular pan by two rollers or cylindrical stones, shod with iron rims $2\frac{1}{2}$ inches thick, and weighing from $2\frac{1}{2}$ to $3\frac{1}{4}$ tons apiece. After being ground, the clay is carried on an endless band to a "riddle" of about 4 or 6 mesh to the inch for fire-bricks, 6 or 10 for fine cement clay, and 12 or 14 mesh to the inch for glass-house pot-clay, the larger size mesh being used for the sifting of the clay in wet weather. The large particles, which will not pass through the "riddle," are carried back on an endless band to the pan, and there re-ground. As a general rule, it is only for very large fire-brick lumps that re-ground pots, crucibles, or bricks—locally termed "grogg"—are added to the clay before grinding; and fire-cement clay is always ground pure. After passing through the "riddle" the clay is tempered, or brought to a proper degree of plasticity by the addition of water. It is then thoroughly stirred and kneaded, in a circular cast-iron pug-mill, by revolving knives projecting from a vertical shaft driven by steam-power. The clay is forced down by the obliquity of the rotating knives, and streams slowly from a hole near the bottom, whence, after being cut by wires into the proper forms, it travels on in an endless band to the moulding-sheds. The bricks are then moulded by hand in the usual manner, and dried at a temperature of 60 or 70 degrees, in sheds about 120 feet long and 30 feet wide, beneath whose floors run longitudinally two flues. In fine weather, however, the sun heat is made to economise fuel. The bricks are burnt in circular-domed kilns, or cupolas, locally termed "ovens," where they remain for from eight to fourteen days, being fired with the real intensity of flame or white heat for about four days and three nights. They usually require seven days to cool down. The fire is slowly increased and gradually lowered, the time of burning being regulated by the kilnman in charge, who inspects the baking bricks from time to time through holes in the domed roof of the "oven." The chimney-stack is on the outside of the kiln, and the flame burns with a down draught, descending through holes in the floor—the fire-holes being merely openings left in the thickness of the wall of the kiln, and protected from the wind by buttresses long enough to allow room for the firemen to attend the fires. The coal is, of course, obtained from the pits which provide the clay. Most of the kilns hold each

12,000 bricks, but some are made large enough to contain each 30,000 or 35,000 bricks, the capacity of a kiln being roughly calculated upon the assumption that ten bricks require one cubic foot of space in the kiln.

The bricks from other districts.

There are several classes of fire-bricks in the Exhibition besides those from Stourbridge, which well deserve examination. Those sent by the Messrs. Martin Brothers, of Lee Moor, Plympton, are made from the refuse of kaolin, or china clay, mixed with quartz sand, carefully selected and washed. The kaolin is found in Cornwall and Devonshire, and is produced by the disintegration of pegmatite or felspathic granite, under the action of the atmosphere; it then becomes a basic silicate of alumina. The following are the results of analysis of some specimens of kaolinitic bricks:—

Silica	75.89 ..	75.36 ..	73.50 ..	76.70
Alumina	21.61 ..	21.47 ..	22.70 ..	20.10
Peroxide of iron	1.96 ..	1.79 ..	1.70 ..	1.70
Alkalies, waste, &c. ..	.54 ..	1.38 ..	2.10 ..	1.50
	100	100	100	100

Though not very sightly, and though very destructive to the workmen's tools by reason of their hardness, these kaolinitic bricks possess remarkably high refractory powers, as might be expected from the small quantity of iron they contain.

Another distinct class of fire-bricks and lumps is exhibited by W. F. Holland of Guisymuda, near Swansea, and the Templeton Silica Works Company, of Narberth, Pembrokeshire, their bricks appearing to be of identically the same composition as the well-known Dinas fire-bricks, made from the rocks in the Vale of Neath, Glamorganshire, and consisting almost entirely of pure silex. Such bricks are well adapted for furnaces worked continuously at a very intense heat, but suffer in situations where they are exposed to frequent changes of temperature, such as a furnace allowed to stand on Sundays. They usually contain about 96 per cent. of silica, and only about ·5 per cent. of iron. Their siliceous nature renders it essential that they should not be exposed to the action of slags rich in metallic oxides, or to the fumes from lead ores, or to proximity with alkaline substances generally. Indeed, Dr. Percy, describing lead smelting in the Flintshire furnaces at Bagillt (Metallurgy of Lead, 1870, p. 228) says:—"Common brick or other suitable material may be used in all those parts of the furnace—such as the foundations, exterior of the walls, crown of the air-vault, etc.—which are not to be exposed to a high temperature; but in all other parts the reverberatory lead-smelting furnaces of North Wales are built throughout of fire-bricks made at Buckley, in Flintshire, and set with

the same ground clay as employed for the manufacture of the flints. These bricks, though much less refractory than many other kinds, are well adapted for the purpose, and are even more durable in these lead-smelting furnaces than others more infusible." Dr. C. W. Siemens, F.R.S., in a lecture delivered before the Fellows of the Chemical Society, May 7th, 1868, said:—"Welsh Dinas brick, consisting of nearly pure silica, is the only material, of those practically available on a large scale, that I have found to resist the intense heat (4000° Fahr.) at which steel-smelting furnaces are worked." **The bricks from other districts.**

Another good class of fire-brick—that of the Burton-on-Trent district—is represented in the Exhibition by Mr. John Knowles, of the Wooden Box, whose goods are well known in the Sheffield works. The Glenboig Fire Clay Company, of Coatbridge, N.B., also send specimens of their well-known fire-bricks, some pressed and some unpressed; and the Leeds fire clay district is represented by J. Cliff & Son, of Wortley, and the Farnley Iron Company. Fire-bricks are also exhibited by the Kinson Pottery Company, R. Thomas & Co., John Finch, and W. Cawte.

As before remarked, it is impossible for any visitor, by a mere cursory inspection, to ascertain the respective merits of such wares; but it may safely be asserted that such a collection of good fire-bricks has never before been brought together.

By their side, in the East Exhibition Arcade, is a large collection of plumbago crucibles, for purposes of melting brass, malleable iron, copper, antimony, zinc, gold, silver, steel, etc. The use of plumbago crucibles has of late years greatly increased: consisting of plumbago, or pure graphite, mixed with sufficient fire-clay to make it plastic, they were formerly turned by hand, but are now almost always made by machinery. In addition to the recent improvements in manufacture, the great advantage of plumbago crucibles over the ordinary fire-clay pots formerly used consists in the fact that they can be worked for a period extending over several days, and can be heated or cooled with the greatest rapidity without any danger of cracking. They may be plunged into cold water when at a white heat, and again returned to the furnace without injury. **Plumbago crucibles.**

Under the old system, a new fire-clay pot was filled in the morning and worked till night only, a fresh one being worked each day. In this way a considerable amount of metal was wasted, some being absorbed into the body of the crucible and still more adhering to the sides. To recover this it was customary to fill a crucible at night with sweepings and scrapings of the old pots, which were allowed to settle until the morning, when the metal

Plumbago crucibles.

was withdrawn; but by this plan an obvious loss of fuel and labour was incurred.

The report of the English Mint for 1870 states that, "in silver melting, iron pots have been entirely superseded by plumbago crucibles," and further, "the success which has attended the plumbago crucible has been most marked; the loss has been smaller, and we have been enabled to ascertain the out-turn of each day's work exactly." The plumbago, or pure graphite, employed in the manufacture of these crucibles is obtained from Ceylon, the best qualities, or those containing scarcely any iron, being selected for the purpose. When first raised from the mine, and as imported into this country, it is always more or less mixed with lime, oxide of iron, and other substances liable to fuse with other materials at a high temperature. It is of the utmost importance that these substances should be removed, so as to leave nothing but pure graphite for the use of the maker. Various means are employed for this purpose by different manufacturers, the purity of material being the chief essential to insure resistance of temperature and fluxes.

Purity of material, however, is not the only quality necessary for the successful production of a good crucible. The body of the pot must be of an even thickness throughout; otherwise, one part would be worn through before another part had been sufficiently worked. It must also be solid and free from external roughness likely to cause adhesion of the metal. Again, it must not be friable so as to break under the rough handling of the melter's tongs in drawing from the furnace. Finally, it must be formed of a substance which is a fit and ready conductor of heat, so as to prevent unnecessary consumption of fuel.

In crucibles for melting different metals the plumbago is combined with different materials, according to the temperatures at which those metals melt. Thus, for a steel-melting crucible, materials of the highest heat-resisting power are required; whilst, for melting zinc, a material of a comparatively low refractory power is necessary.

The chief exhibitors of plumbago crucibles in this Exhibition are the Patent Plumbago Crucible Company, of Battersea, and the Messrs. Doulton & Co., of Lambeth. The latter send a giant crucible, free from flaws, which, from its size, will doubtless attract considerable attention. It is nearly six feet in height, and four feet in diameter at the mouth; it is asserted to be capable of melting more than 13,000 lbs. of metal. The same firm exhibits a very large plumbago-pot, with bridge and stopper, which has been manufactured for a French firm in Paris. There is also shown a fine collection of muffles for glass-staining and

other purposes, and plumbago crucibles of all descriptions—some showing their sound condition after melting German silver, gun-metal, copper, and nickel. Plumbago crucibles.

The Patent Plumbago Crucible Company also exhibits a most valuable and interesting assortment of crucibles, including assay pots for copper, lead, etc., clay crucibles for jewellers and refiners, fluxing pots, or "Creusets de Paris," and muffles, for jewellers' use, and for the various operations connected with dentistry, enamelling, and assaying. Plumbago and fire-clay crucibles for gold and silver melters and refiners, of good quality, are also shown by Mr. J. Hynam, of Finsbury, and some Stourbridge manufacturers, the Messrs. Harper & Moore, and King Brothers.

These have during the last twenty years almost entirely superseded the iron retorts formerly in use, and the improved manufacture of this class of goods has been very considerable. Gas companies are said to have largely increased their profits since the change from iron to clay retorts, but this change has tended to diminish the number of fire-bricks, tiles, and various smaller kinds of fire-clay goods formerly consumed in setting the iron retorts. In the present Exhibition are specimens of circular and D-shaped fire-clay retorts from Messrs. Harris & Pearson, Harper & Moores, J. Hall, and Y. J. Pearson of Stourbridge; J. Cliff & Son, of Wortley, near Leeds; the Farnley Iron Company, of Farnley, near Leeds; N. J. Dor, of Ampsin, Huy, Belgium; and André de Lattre et Cie., of Andenne Seilles, Belgium. Fire-clay gas retorts.

There is, perhaps, more perceptible difference in quality between some of these retorts than in any other class of this section of fire-clay goods. Some few of them, evidently prepared expressly for exhibition, are more perfectly moulded, closer, finer in composition, and less burnt, than would be usual or desirable in the actual market. It is indeed a matter for consideration whether manufacturers should not in future be requested in such cases to notify upon their exhibited wares whether they were selected from the ordinary stock, or expressly constructed as specimens of what is practicable in their works, when unrestricted by the usual conditions which govern manufacture and supply.

Among the retorts exhibited by the Farnley Iron Company, is a D-shaped retort, with internal ribs, according to the patent of Mr. A. C. Fraser, of the Gas Works, Middlesborough. The professed objects of this peculiar form are to increase the strength of the retort, and to afford a greater heating surface, so as to carbonise the charges with rapidity.

Though it would be exceeding the province of this Report to Belgian contribution.

Belgian contribution.

draw comparisons or assert distinctions, it is impossible to refrain from inviting attention to the very excellent gas retort exhibited by the Belgian firm, André de Lattre et Cie., in which retort the uniform composition and perfect firing are shown in the small accidental fractures on the edge. The same firm exhibits an equally good fire-lump, 5 feet long, 2 feet 6 inches wide, and 1 foot thick, and an acid jar made of fire-clay—all well worthy of careful examination, and resembling the ordinary Stourbridge fire-clay in appearance and colour—a foxy reddish hue, resulting from the ferric oxide contained. Of a different composition are the small retorts exhibited by N. J. Dor, of Ampsin, who also contributes some interesting specimens of Ampsin clays, used for the manufacture of crucibles. The Belgian fire-clay districts are certainly well represented in the present Exhibition: for there are shown, in addition to the above-named, some raw materials, bricks, lumps, and tiles, from M. Victor Laigneaux, of Mons, and the MM. Steenacker et Cie., of Boom.

Summary.

Chemical analysis and practical tests are, as before pointed out in this Report, the only reliable means of determining with any degree of certainty the respective merits of fire-clay goods. Yet such an Exhibition as this is valuable to those concerned in the subject. It affords opportunities for careful inspection of the composition, the mixture of the clays, the degree of firing, and the workmanship of the various fire-clay wares. It attracts attention to a special class of keramic manufactures of the utmost importance to all keramic manufacturers. The resistance to fire exercised by the so-called refractory materials is a subject of which there is much to be learned —one which must be based upon most careful experiments, but one which would amply repay the labour of inquiry. In the words of Dr. C. W. Siemens, F.R.S., "the heat at which a suitably-designed furnace can be worked is limited in practice only by the difficulty of finding a material sufficiently refractory of which it can be built."

REPORT

ON

NEW MACHINERY AND PROCESSES

EMPLOYED IN THE

MANUFACTURE OF POTTERY,

Shown in the International Exhibition of 1871.

By PETER BAWDEN, Esq.

The machinery collected in the Exhibition for the purpose of illustrating the various processes employed in the manufacture of pottery is placed in a special semi-detached erection or annexe, to the east of the main building. It is approached from the gallery in which is shown the large and exceedingly interesting collection of earthenware, stoneware, porcelain, etc., the results of these processes.

In describing these machines, I propose to take them in the numerical order in which they appear in the Catalogue.

No. 4496. *Improved Three-Process Brickmaking Machine* (*combining at one operation crushing, pugging, and brick-making*). Clayton, Son & Howlett, Atlas Works, Harrow Road, London, W. — This is a well-known machine, which has been in use many years, and has been awarded first prizes and medals at the great Exhibitions since 1845; also receiving testimonials from different parts of the world. It is strong, made of the best materials, and unites all the latest improvements; its general construction may be briefly described as follows:—The rough clay (which is worked much dryer than by hand labour) is thrown into the hopper of the machine; in this hopper revolves a shaft, upon which are keyed

several small knives, which cut up the clay previous to its being crushed, and also regulate its feed to the crushing-rollers. It next passes through a pair of powerful crushing-rollers, and these effectually reduce any stones or hard lumps of clay which may enter. The clay thus partially prepared, next passes into a horizontal pugging or mixing-cylinder situated beneath, where it is mixed by the pug-knives, which are fixed upon the central shaft. The knives gather the clay towards the further end of the cylinder, where it is received at each side of the machine by a pair of "expressing" rollers and forced through the dies (Clayton's Patent Rotary Orifice Dies), forming a smooth bar or stream of clay of the length and width required for the bricks. This stream of moulded clay is forced from each side of the machine alternately, and is received upon the cutting-tables, and while it is in a state of rest it is cut by about seven steel wires, stretched in a frame made in such a way as to be moveable upon a couple of bearings below. It is moved across and through the stream of clay, cutting it to the required thickness of bricks; these are then taken to the drying-ground. The machine is worked by a steam-engine of 16-horse power, and produces from 20,000 to 30,000 bricks per day. Price, complete, £330.

No. 4497. *Double-Chamber (Hand-power) Tile, Pipe, and Brick Machine.* Clayton, Son & Howlett.—This is a cheap, well made portable machine, standing on four wheels. It has two strong clay chambers, with wrought iron planed covers, in which are two pistons, connected at each end of a rack, to which motion is given, and so arranged that both the forward and backward motions are made to act upon the clay, thus filling the chambers alternately, one being charged whilst the other is being emptied. The piston forces the drain pipes through the lubricating dies upon the cutting table. The pipes or tiles are then cut with a wire and taken to the drying ground. One man can work the machine by means of a crank-handle and multiplying cog-wheels. Price £28.

No. 4498. *Large's Patent Semi-dry, Moulding and Pressing Machine, for Fire Clay, Concrete, etc.* Clayton, Son & Howlett. — This machine, invented by Henry Large and manufactured by the exhibitors, is designed for making bricks or blocks from concrete, semi-dry granulated clay, etc. The materials of which the bricks are to be made, when properly mixed, are placed in moulds, alternately brought under a plunger, the pressure of which forces the materials to become consolidated and compressed into the form of the mould; the mould is then carried forward to a second plunger, and the brick forced out of the mould on to a receiving table attached to the end of a weighted lever. The brick being

taken off, the table rises to receive the next brick, and the mould is pushed to the front to be refilled. Bricks made of concrete do not require burning, but are fit for use in a few days. The machine is strong and substantially made, and is driven by steam power. Price £80.

No. 4499. *Patent Hand-power Brick-pressing Machine.* Clayton, Son & Howlett.—This machine will produce highly-finished bricks of a superior quality. It is portable, being constructed upon a barrow-carriage, so that it can be wheeled to the bricks requiring pressing. It consists of a mould box the size of the brick to be pressed, in which a piston is moved up and down by means of a partial revolution of a cam, on a cam-shaft placed under the mould box and actuated by a lever. The cam-shaft is connected with the cover to the mould box by side arms. There is a weight attached also to the cam-shaft, which vibrates with the hand lever. The bricks are placed into the mould or press box one at a time and pressed, and then replaced on the drying ground. The machine is worked by a man and boy, and will press 5,000 per day. Prices from £17 to £25.

No. 4500. *Patent Screw Construction Ornamental Tile-pressing Machine.* Clayton, Son & Howlett.—This is a machine which presses by means of a vertical screw, turned by a cross lever with balance balls, and is adapted for pressing ornamental roofing and paving tiles. It is a strong, compact machine, mounted on four wheels. The piston and press box are arranged in the same manner as is described in the brick press No. 4499. Price according to size, from £25 to £42.

No. 4501. *Patent Self-delivery Brick-cutting Apparatus.* Clayton, Son & Howlett.—Is well adapted for all brick machines that work on the principle of forcing a bar or stream of clay through a die. As the clay leaves the die it is received upon the receiving table, and is cut off by a single wire fixed in a swinging bow; the clay is then drawn forward by hand upon a sliding table made of zinc; this table is brought forth and back by means of a crank handle, which transmits motion to pinions and racks. The frame with the stretched wires then passes through the stream of clay, cutting it into bricks of the thickness required. As the wires pass through the clay a portable board is conveyed under the bricks, on which they are taken to the drying ground. The machine is well constructed, and cuts the bricks with remarkable accuracy. Price £20.

No. 4502. *Potter's Wheel,* 1871. Doulton & Watts, Lambeth, London.—This firm exhibit at work a well made potter's wheel,

manufactured by themselves, and as used in their factory. The wheel is driven by steam power; the potter has, however, perfect control over it with his foot.

No. 4503. *Blake's Patent Crusher, for Crushing Pottery and Clay.* H. R. Marsden, Meadow Lane, Leeds.—This stone-breaker or crusher has been in use for the last seven years, and has been awarded twenty-five gold, silver, and other first prize medals, having also received testimonials from different parts of the world, highly recommendatory as giving entire satisfaction in breaking and crushing the hardest stones, ores, minerals, etc., for different purposes at 1⅛d. per ton. The machine, which is very simple and compact, is constructed as follows:—The frame which receives and supports all the other parts, is cast in one piece, there being two fly wheels on a shaft (one on each side of the machine) which has its bearings on the frame, and which between these bearings is formed into an eccentric. There is also a pulley on the same shaft, to receive a belt from a steam-engine or other power. There is a sort of connecting rod, which connects the eccentric with the toggles which have their bearings, forming an elbow toggle-joint. There is a fixed vertical jaw, against which the stones are crushed. The moveable jaw is supported on the bar of iron which passes freely through it, and forms the pivot upon which it vibrates. Every revolution of the eccentric causes the lower end of the moveable jaw to advance towards the fixed jaw about a quarter-of-an-inch and return. Hence if a stone be dropped in between the convergent faces of the jaws, it will be broken by the next succeeding bite, and so on until the fragments are small enough to pass out at the bottom. The machine can be gauged to break stones to any given size by turning a screw. The simplicity and capability of the machine surprise every one who sees it at work. The prices, according to size, vary from 36 cwt., £75, to 376 cwt., £350.

No. 4504. *Hand Press for making Tesseræ and Tiles.* 1871. Minton & Co., 50, Conduit Street, Regent Street, London.—This is a complete, well-made, hand-screw press, for pressing damp, coloured clays for mosaics, encaustic tiles, etc. The lower end of the vertical screw has four small square punches or pistons; these fit into four square apertures in the die block, which rests on the table. The clay is put on the die, and then pressed into the apertures, and again pushed up by pistons. The mosaics are then placed away to dry previous to burning. The machine and its operation, although very simple, are much admired, as well as the two cases of finished mosaics.

No. 4505. *Pollocks' Patent Brick-making Machine.* Pollock & Pollock, Leeds.—This brick-making machine is the heaviest and strongest in the Exhibition, and is constructed as follows:—The machine stands on a massive base plate about 6 feet square, upon which all its working parts are carried; it is about 12 feet high. On the top is a hopper to receive the clay, which falls on a pair of heavy horizontal rollers which crush it. The clay then falls into the pug-mill, and from thence on to the revolving steel table, in which are four apertures forming the moulds into which the clay is forced with a piston; the table revolves, and the brick is forced up by means of a loose bottom on the principle of the hand-brick press. The brick is then placed by the machine in another mould, where it receives a second pressing. It is then lifted up as before, and conveyed on a belt under a rotary brush for removing any sharp corners. The machine is said to make from 9,000 to 36,000 bricks per day.

No. 4506. *Camroux's Patent Machine for Pulverising Clays and other Substances used in the Manufacture of Bricks and Pottery.* Gardiner & Mackintosh.—This machine will crush to any given size quartz, emery, granite, flints, ores, minerals, chemicals, etc.; it is constructed as follows:—The pulley which receives the belt from the steam engine is fastened upon the end of a horizontal strong shaft, at the other end of which is a heavy fly-wheel. There are also on the same shaft two cog-wheels; these drive two others which are upon two short shafts; these short shafts are a little on the incline, being lowest at the outer ends. Upon the inner ends of the short shafts are chilled cast-iron circular discs or crushers; the short shafts being lowest at the outer ends, as just stated, give the angle-grooved circular discs a wider space on the top to receive the stones, and as the discs revolve, the crushing commences, and continues until the stones get to the bottom, where the discs are nearest together. The stones so crushed fall out below, the discs continuing to revolve and crush the stones thrown into the hopper above the discs; the operation is thus continuous.

No. 4507. *Filter Press used by Potters to Extract the Water from Slip, to Reduce it to Clay.* Needham & Kite.—This exhibit is composed of a number of wooden frames bolted together, forming a large filter, with pumps, pipes, etc., and is said to answer well for potters' use.

No. 4508. *No.* 4 *Patent Brick Draining-Pipe and Tile Machine.* E. Page & Co., Bedford.—This is a cheap, well-made, compact, and useful portable machine for making all kinds of drain-pipes,

roofing, flooring tiles, etc. The framework, which runs on four small wheels, contains the compressing chamber, into which the clay is put by hand after being pugged. The pug propelling reciprocating piston forces the clay through the lubricating dies on to the cutting table. There is a crank handle (which is worked by a man) fastened to a spindle, on which is a pinion that drives a large cog or spur-wheel; this gives motion to the piston, the drain pipes being forced through the dies on to the cutting table; they are then cut by means of wires fixed on a sliding rack. The tiles are then taken to the drying ground. The machine will produce 6,500 of 2-inch pipes, or 2,500 bricks per day. Price, complete, £20.

No. 4509. *Brick-making Machine, with Self-acting Feed and Cutter.* J. D. Pinfold, Rugby.—This patent machine, which is self-acting throughout, is constructed as follows:—There is a shaft, on one end of which is a pulley to receive the belt from the engine; on the other end of the shaft is a pinion; this drives a larger wheel, on the shaft of which is a large clay roller, and on the same shaft on the other side of the roller is another spur wheel which drives the large roller underneath, so that the rollers are horizontal and one over the other about half an inch apart. The wheel on the shaft of the top roller drives another wheel behind, on the shaft of which are two bevel cog wheels; these drive two others of the same size, which are on the top ends of the pug mill shafts; these shafts are on an incline with short clay knives which force the clay between the rollers. There are iron water pipes for conveying water to lubricate the ends of the rollers. In front of the machine is a wheel of a novel and ingenious construction with wire spokes for cutting the stream of clay into bricks. The clay is put into the hopper on the sides of the two inclined pug-mill shafts, the ends being toward the clay rollers, which force the clay in a continuous bar or stream through a lubricating die, the clay passing on to a belt, which carries it through the wheel with wire spokes, which revolve and cut the clay into bricks one at a time. The bricks are then taken away to the drying ground. The machine will make from 15,000 to 20,000 bricks per day. Price £155.

No. 4510. *Brick-making Machine, with Hand Feed and Travelling Hand Cutter.* 1871. J. D. Pinfold, Rugby.—This invention is the same in principle as the preceding (No. 4509), and is fitted with safety friction, which prevents breakage. It has a travelling cutting table. The bricks are cut by hand with wires fixed on a sliding rack. The machine produces from 8,000 to 10,000 bricks, or 14,000 to 16,000 drain pipes per day. Price, £55.

No. 4511. *Patent Potter's Wheel.* William Boulton, Burslem, Staffordshire.—This patent potter's wheel is driven by steam power, and is so constructed that several may be driven by the same band, and with about one-fourth the usual power, the potter's wheel being on the top of a vertical spindle, a cone being on the same spindle under the wheel. There is also another spindle with a cone reversed. This spindle is under perfect control of the potter's foot; a slight pressure of which will give more or less speed to the wheel, this being effected by friction of the cones when brought together. The momentary change of speed is caused by the rocking motion of the large or small end of the cone coming in contact with the other cone on the spindle of the potter's wheel. This wheel is highly recommended by testimonials from those who have tested its merits.

No. 4512. *Encaustic Tile Press.* Malkin, Edge & Co. — This patent encaustic tile press, and the operation in making and inlaying the different colours in the encaustic tiles from pulverised clay for all kinds of pavement, is very ingenious and complete. The machine is constructed as follows:—There is a strong iron frame, on which is a sliding box and ram; also two vertical pillars, connected together at the top by the bearing of a strong vertical screw, which carries a heavy horizontal fly-wheel. In making tiles, the inlaying is first put on the bottom ram in a die, this die being a brass plate about a quarter of an inch thick; this first pulverised coloured clay being pressed by hand, the die is then removed, leaving the clay so pressed on the ram in the mould; another brass plate or die is then placed on the ram, having a space for the clay left on the ram by the first die. This second die is also filled by hand with pulverised clay of another colour and pressed by hand also, and being removed leaves the inlaying on the ram which is in the mould; the mould is then filled with a third colour of almost dry pulverised clay; this forms the back or groundwork; the mould is then pushed under the top ram which is fastened to the bottom of the screw. The man then turns the screw by means of the horizontal wheel which is on the top of it; the momentum given to the screw by the wheel presses the tile, which is pushed up out of the mould by the bottom ram or loose bottom; it is then taken from the mould perfect, solid, and almost dry. This is certainly a great improvement upon the old method of making with clay in a plastic state; it is also a great saving in labour.

No. 4513. *Machine for Grinding Colours for Pottery.* R. Bewley, Jun.—This is a patent machine and of especial merit for grinding colours and gold used in the ornamentation of china, and it is

also suitable for preparing printers' ink and other substances which require to be ground to an impalpable state. The substance to be ground is placed on a circular slab of glass or round glass table, on which there are seven glass mullers which grind the colours. The round glass table has a bevel cog-wheel fastened underneath it, which is driven by a bevel pinion, on the spindle of which is a crank handle, worked by a boy. Turning the handle causes the table to revolve; the edge of the table having teeth also forms a cog-wheel, which drives two pinion wheels, situated one on each side the table, these pinions having cranks which are connected by a connecting rod or frame to hold the seven mullers. By turning the crank handle the table revolves, giving motion to the mullers, which also revolve on the table. There are also scrapers on the table to prevent the colours, etc., from being wasted at the outer edge. The machine is evidently well adapted for the purpose it is designed to fulfil; we are told that by its aid a boy or a woman will do twelve times more work in a day than by hand labour.

No. 4514. *Machine for Pulverising dry Granular Ingredients and Calcined Flints for Pottery.* 1871. James Johnson.—This patent mill is a polygonal horizontal cylinder, made of wood lined with iron, and revolves on its spindles, at the end of which a handle is fastened when driven by hand, or a pulley when driven by other power. In the interior angles of the mill, formed by the junction of the cylinder with its covers, are placed projecting angle pieces, which act upon and repulse the ingredients as the cylinder revolves, and pulverise the calcined flints, emery, and other hard substances. The testimonials speak highly of its pulverising capacity.

No. 4515. *Moulds for making Tiles, Bricks, Coping, and Plinth Bricks.* 1871. Clark & Hunt.—There are six moulds and stocks to fit them, all of different sizes and shapes, for making bricks and tiles by hand labour. These moulds are made of the best materials and workmanship, the sides being of oak and lined with iron.

No. 4516. *Model of Clay Grinding Machine.* G. H. Goodman, 53, Penrose Street, Walworth, London, S.E.—Is very powerful for its size; simple and compact in its construction, and well adapted for crushing rough and strong clays, and for stone breaking, crushing, grinding, and triturating stone, minerals, and ores (dry or wet), granite, etc., all of which may be reduced to any given size; also for washing and separating metals from ores, gold from quartz, etc. The machine has a pulley to receive a

belt from a steam engine. This pulley shaft has an eccentric and cog-wheels which give motion to the whole machine. The crusher consists of a horizontal ram, mounted loosely on the eccentric, by means of which a crushing and grinding movement is attained. When the triturator is used, the material passes over a vibrating sieve, the fine falling through and the coarse passing into the disc hopper, where it becomes reduced to powder. Prices according to size, from £40 to £120.

No. 4517. *Models of Kilns and Drying Rooms.* Clayton Son & Howlett, London.—This model of a patent kiln was invented by Mr. Henry Clayton, for drying bricks, tiles, and other wares, by artificial, means upon the pneumatic principle, being a simple and novel system of constantly injecting dry heated air into the drying chamber or shed, where the wet bricks are baked the same as in the open air. The one furnace fills the chamber with hot air, there being no underground flues, but dampers so arranged as to regulate the heat. By means of this drying kiln, brick or tile making may be carried on all the year round.

No. 4518. *Model of Patent Kiln.* John Knowles.—This model of a kiln is for burning pipes, tiles, bricks, and earthenware, and represents three circular-walled kilns, each containing chambers in which bricks are burned. The fire-holes are all around the outside at the bottom; there is also to each chamber a hole to enable the men to wheel the bricks, tiles, etc., in and out on barrows. The three circular kilns, forming a triangle, are connected together by means of flues to convey the hot air from one to the other, and are opened and shut when required by the burner. The object aimed at and accomplished in this patent kiln, is thoroughly burning bricks, tiles, etc., with a saving of fuel.

No. 4519. *Model of Morand's Patent Kiln for Drying Bricks, Tiles, and other Keramic Wares.* T. S. Derham.—This model of a patent kiln for burning bricks, tiles, etc., represents a long building with chambers on each side, in which the bricks or tiles are stacked and burnt. The chambers are divided by walls, and connected with each other by means of man-holes and flues. The bricks being stacked in one of the chambers, the fire is then started from the bottom, and continued until the steam is all passed off up the chimney, and the dampers opened in the flues which lead to the adjacent chamber of green bricks, the hot air then pasess from one chamber to the other. The fire-holes are closed at the bottom as soon as the steam is all off. The fire is then fed from a number

of small stoke-holes in the top of each chamber; these small holes or flues being from the top to the bottom of the chamber of bricks, the coal or other fuel is dropped down through them. The inventor claims for this kiln simplicity of action, great economy of fuel, and a complete consumption of smoke.

No. 4520. *Model of Patent Brick and Tile-making Machine on Quarter Scale.* Peter Bawden, 49, Norland Square, Notting Hill, London.—As the maker, I may, perhaps, express my belief that this is the only machine in England which makes bricks and tiles in sanded moulds, of clay as wet or soft as is used in hand moulding. There are no rollers or crushers, and the clay being used soft, it requires but little power to work it. One horse will pug the clay and mould from 12,000 to 15,000 bricks per day (19,000 have been made). A ten-horse power steam engine will drive five machines, with the necessary shafting, each making 15,000, being a total of 75,000 soft sanded bricks per day. The machine is strong and simple, there being no wire, cloth, canvas, nor a cog-wheel in any part of it. Its general construction is as follows:—There is a square pug mill, through which runs a vertical shaft having clay knives. On the top of this shaft, above its bearing, is attached the horse-pole, which gives motion to the whole machine. Upon the lower end of the shaft, which passes through the bottom of the pug-mill, is a wheel having two cams, on which two rocking arms work. One arm presses the soft clay through a grating into a six-brick sanded mould, and the other arm is connected to a slide for pushing the empty sanded moulds under the grate; the empty mould at the same time pushes the full one out. The six-brick moulds are made of wood, each mould forming six boxes, with ventilating bottoms fastened on them, the top edges being ironed. The wet clay is taken to the pug mill in wheelbarrows; when pugged, it is pushed through an aperture in front, at the bottom, into the hinged press, and then pressed into the mould; the mould is then taken by the man, and turned over on to six pallet boards, resting on the barrow; when filled this is wheeled to the drying ground. The machine has been awarded a first prize medal and diploma. Price complete, £60.

No. 4521. *Model of Hoffmann's Patent Annular Kiln.* Humphrey Chamberlain.—This oblong model of kiln represents the mode of saving fuel in burning bricks. There are a number of chambers in which the bricks are stacked, one chamber being filled with green bricks; the fire is then applied to it from holes from the top of the kiln, down which the fire is fed, fuel holes or flues being left in the bricks for the purpose. The steam passes off

through flues to the chimney, the second chamber being filled with bricks; and the steam being off from the first chamber of bricks, the flues in the partition-wall between the chambers are then opened (all the flues being under perfect control of the brick burner), and the hot air is allowed to enter the second chamber, and so on with the rest, the heat going from one chamber to the other.

When the bricks are burnt, they are allowed to cool by opening the flues to the cold air; the chamber is then emptied, and refilled with green bricks, and thus the operation continues, the fire never ceasing night nor day.

No. 4522. *Model of Toothed Brick.* Dr. S. Schmidt.—This exhibit consists of two bricks, made of wood, 12 inches long, $5\frac{5}{8}$ inches wide, and $2\frac{1}{2}$ inches thick. The top of the brick has eight recesses, 1 inch deep, $1\frac{1}{2}$ inch square at top, and 1 inch at bottom of recess, while at the bottom are eight square bosses, which will exactly fit into the recesses of the top, the bricks being all the same, with recesses on top and bosses under, they will lie close on one another, one over the other; should it be required to break the joint, or to make one a stretcher and the other a header, or to form a corner, in all ways the boss of one will fit into the recess of the other; no doubt these bricks, being so bound together, would make a strong wall.

No. 4523. *Process of Broseley Glazed Tobacco-pipe Manufacture.* W. Southorn & Co.—This exhibit shows the mode of moulding a long stem clay tobacco-pipe in the ordinary way. There has been little, if any, improvement in making clay pipes for the last fifty years. There is the bench, to which is fastened the bed and screw, which act as a vice on the pipe-mould. The gin-head is a short wooden pillar, to which a wooden beam or handle is hinged; to this handle is hinged the stopper, which forms the bowl of the pipe.

The mode of making pipes is as follows:—The clay, being tempered, is placed on the table. The man takes a small piece of clay, and rolls it on the table to form the stem, leaving it large at one end to form the bowl; these are called rolls. After a few hours the rolls become dry enough to mould; a wire is then run through the stem, and it is placed in one-half of the mould, which has been oiled, the other half being placed on it. They are fitted together with iron bosses or pins. The mould is put into the bed, and pressed together; the beam handle is pulled down, which forces the stopper into the mould, and forms the bowl; the handle is then lifted, the surplus clay cut off, screw loosened, mould taken out of the bed, wire withdrawn, the mould parted, and the pipe placed on a board to dry for a few hours; when it is

trimmed, the rough marks caused by the parting of the mould are made smooth, when it is again placed on the board to get quite dry, and then put into the kiln and burnt. The pipes are glazed after being burnt.

No. 4524. *Process of Clay Tobacco-pipe Manufacture.* W. T. Blake.—This exhibit is a patent tobacco-pipe made of common pipe-clay. It is a short stem pipe, with a joint in the stem. There is a small tube at the joint projecting into the centre of a larger tube towards the bowl; any accumulation of liquid in the larger tube, between the bowl and joint, must therefore naturally flow under the smaller tube, which prevents it from rising to the mouth of the smoker; it, however, escapes through a small tube, running back under the bowl, which is closed with a cap at its end when in use.

There is also shown on the bench the ordinary mode of making short stem clay tobacco-pipes.

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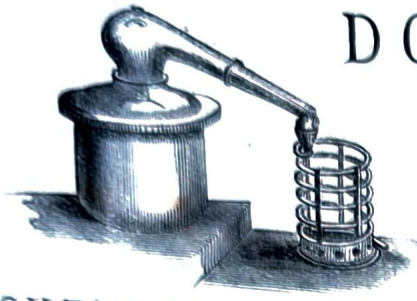

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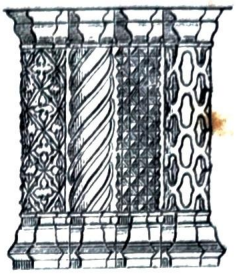

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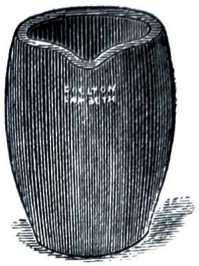

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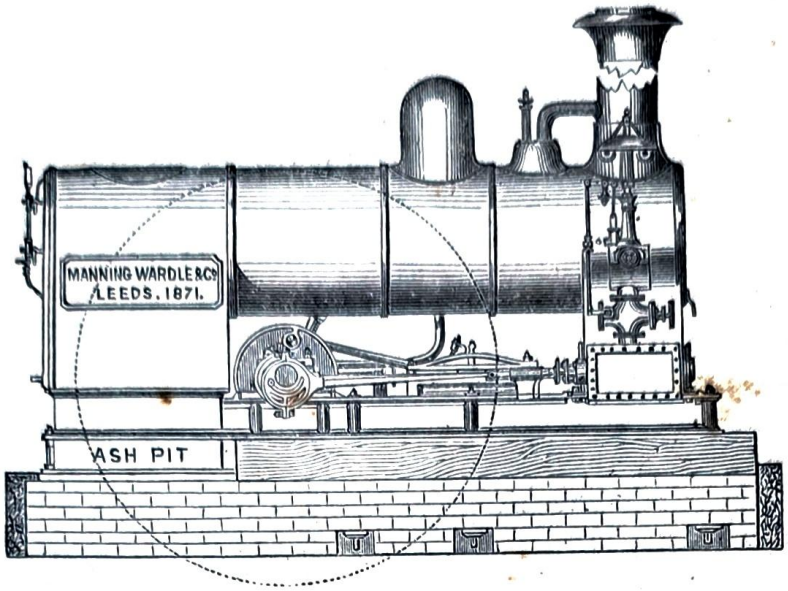

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